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The Architects' JOURNAL for April 9, 1959

THE ARCHITECTS' JOURNAL



standard contents

every issue does not necessarily contain all these contents, but they are the regular features which continually recur

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Building Costs Analysed

Architectural Appointments Wanted and Vacant

No. 3345] [Vol. 129

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★ A glossary of abbreviations of Government Departments and Societies and Committees of all kinds, together with their full address and telephone numbers. The glossary is published in two parts—A to Ii one week, Il to Z the next. In all cases where the town is not mentioned the word LONDON is implicit in the address.

AA	Architectural Association, 34/6, Bedford Square, W.C.1.	Museum 0974
AAI	Association of Art Institutions. Secy.: W. L. Stevenson, College of Art, Hope Street, Liverpool 1.	Royal 1826
ABS	Architects' Benevolent Society. 66, Portland Place, W.1.	Langham 5533
ABT	Association of Building Technicians. 1, Ashley Place, S.W.1.	Victoria 0447-8
ACGB	Arts Council of Great Britain. 4, St. James's Square, S.W.1.	Whitehall 9737
ADA	Aluminium Development Association. 33, Grosvenor Street, W.1.	Mayfair 7501/8
ARCUK	Architects' Registration Council. 68, Portland Place, W.1.	Langham 5861
BAE	Board of Architectural Education. 66, Portland Place, W.1.	Langham 5721
BC	Building Centre. 26, Store Street, Tottenham Court Road, W.C.1.	Museum 5400
BCC	British Colour Council. 13, Portman Square, W.1.	Welbeck 4185
BCCF	British Cast Concrete Federation. 105, Uxbridge Road, Ealing, W.5.	Ealing 9621
BCIRA	British Cast Iron Research Association. Alvechurch, Birmingham.	Redditch 716
BDA	British Door Association. 10, The Boltons, S.W.10.	Fremantle 8494
BE	Building Exhibition. 11, Manchester Square, W.1.	Hunter 1951
BEDA	British Electrical Development Association. 2, Savoy Hill, W.C.2.	Temple Bar 9434
BIA	British Ironfounders' Association. 145, Vincent Street, Glasgow, C.2.	Glasgow Central 2891
BID	Building Industries Distributors. 52, High Holborn, W.C.1.	Chancery 7772
BINC	Building Industries National Council. 11, Weymouth Street, W.1.	Langham 2785
BOT	Board of Trade. Whitehall Gardens, Horseguards Avenue, Whitehall, S.W.1.	Trafalgar 8855
BRS	Building Research Station. Bucknalls Lane, Watford.	Garston 4040
BSA	Building Societies Association. 14, Park Street, W.1.	Mayfair 0515
BSI	British Standards Institution. British Standards House, 2, Park St.,W.1.	Mayfair 9000
CABAS	City and Borough Architects Society. C/o S. A. G. Cook, A.R.I.B.A., Borough Architect and Director of Housing, Town Hall, High Holborn, W.C.1.	Holborn 3411
CAS	County Architects' Society. C/o S. Vincent Goodman, F.R.I.B.A., Shire Hall, Bedford.	Bedford 67444
CCA	Cement and Concrete Association. 52, Grosvenor Gardens, S.W.1.	Belgravia 6661
CDA	Copper Development Association. 55, South Audley Street, W.1.	Grosvenor 8811
COID	Council of Industrial Design. 28, Haymarket, S.W.1.	Trafalgar 8000
CPRE	Council for the Preservation of Rural England. 4, Hobart Place, S.W.1.	Sloane 4280
CUC	Coal Utilization Council. 3, Upper Belgrave Street, S.W.1.	Sloane 9116
CVE	Council for Visual Education. 13, Suffolk Street, Haymarket, S.W.1.	Reading 72255
DIA	Design and Industries Association. 13, Suffolk Street, S.W.1.	Whitehall 0540
EJMA	English Joinery Manufacturers' Association (Incorporated). Sackville House, 40, Piccadilly, W.1.	Regent 4448
EPNS	English Place-Name Society. 7, Selwyn Gardens, Cambridge.	
FAS	Faculty of Architects and Surveyors. 68, Gloucester Place, W.1.	Welbeck 9966
FASS	Federation of Associations of Specialists and Sub-Contractors, 14, Bryanston Street, W.1.	Welbeck 1781
FBBDO	Fibre Building Board Development Organization Ltd. (Fidor), Stafford House, Norfolk Street, W.C.2.	Covent Garden 3008
FBI	Federation of British Industries. 21, Tothill Street, S.W.1.	Whitehall 6711
FC	Forestry Commission. 25, Savile Row, W.1.	Regent 0221
FCMI	Federation of Coated Macadam Industries. 37, Chester Square, S.W.1.	Sloane 1002
FDMA	The Flush Door Manufacturers Association Ltd. Trowell, Nottingham.	Ilkeston 623
FLD	Friends of the Lake District. Pennington House, nr. Ulverston, Lancs.	Ulverston 201
FMB	Federation of Master Builders., 33, John Street, W.C.1. Tel.: Chancery 7583 (6 lines)	
FPC	The Federation of Painting Contractors, St. Stephen's House, S.W.1.	Whitehall 3902
FRHB	Federation of Registered House Builders. 82, New Cavendish Street, W.1.	Langham 4341
GPDA	Gypsum Plasterboard Development Association. 11, Ironmonger Lane, E.C.2.	Monarch 8888
GC	Gas Council. 1, Grosvenor Place, S.W.1.	Sloane 4554
GG	Georgian Group. 2, Chester Street, S.W.1.	Belgravia 3081
HC	Housing Centre. 13, Suffolk Street, Pall Mall, S.W.1.	Whitehall 2881
IAAS	Incorporated Association of Architects and Surveyors. 29, Belgrave Square, S.W.1.	Belgravia 3755
ICA	Institute of Contemporary Arts. 17-18, Dover Street, Piccadilly, W.1.	Grosvenor 6186
ICE	Institution of Civil Engineers. 1, Great George Street, S.W.1.	Whitehall 4577
IEE	Institution of Electrical Engineers. Savoy Place, Victoria Embankment, W.C.2.	Temple Bar 7676
IES	Illuminating Engineering Society. 32, Victoria Street, S.W.1.	Abbey 5215
IGE	Institution of Gas Engineers. 17, Grosvenor Crescent, S.W.1.	Sloane 8266
IHVE	Institution of Heating and Ventilating Engineers. 49, Cadogan Square.	Sloane 1601/3158
IIBDID	Incorporated Institute of British Decorators and Interior Designers. 100, Park Street Grosvenor Square, W.1.	Mayfair 7086

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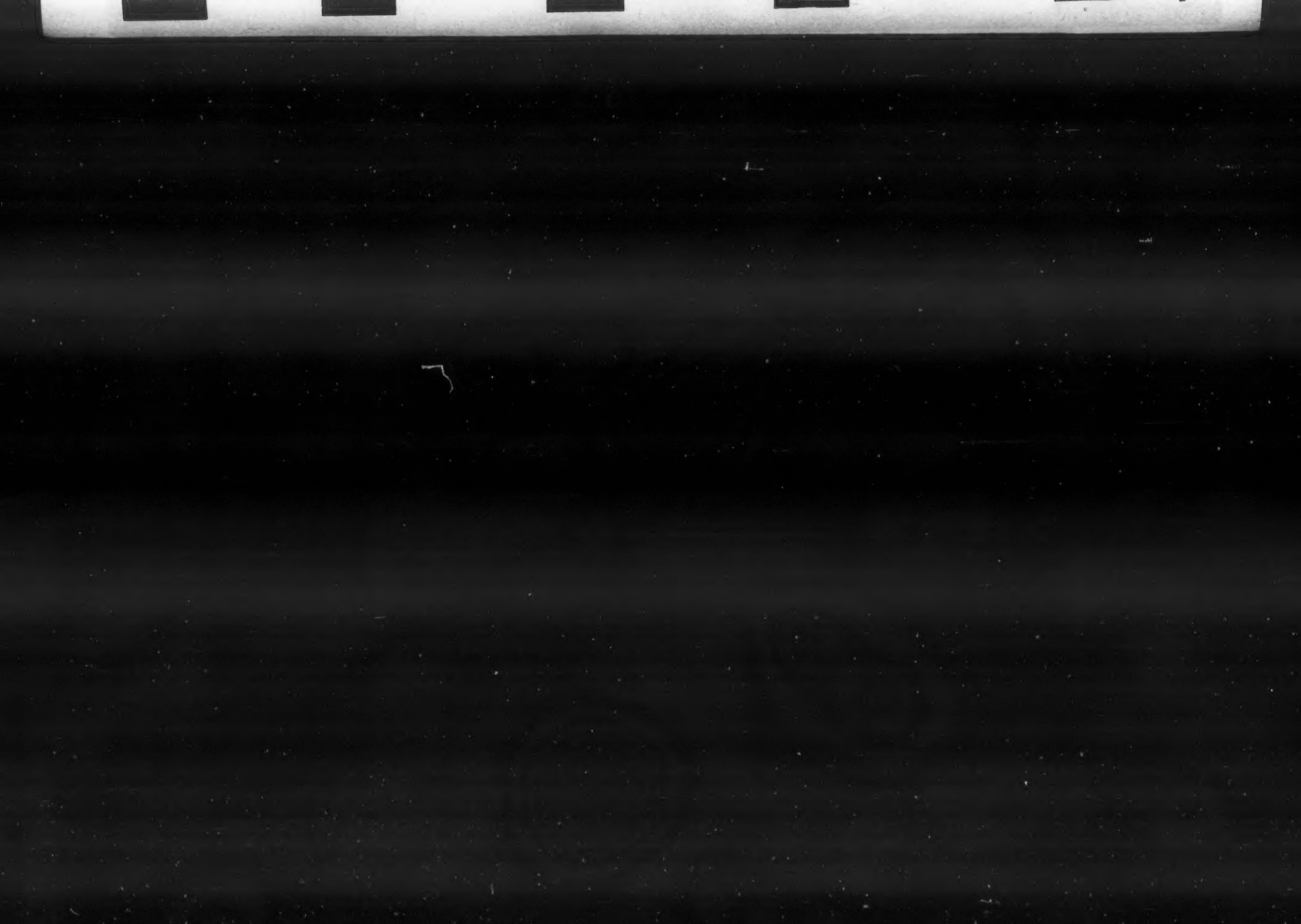


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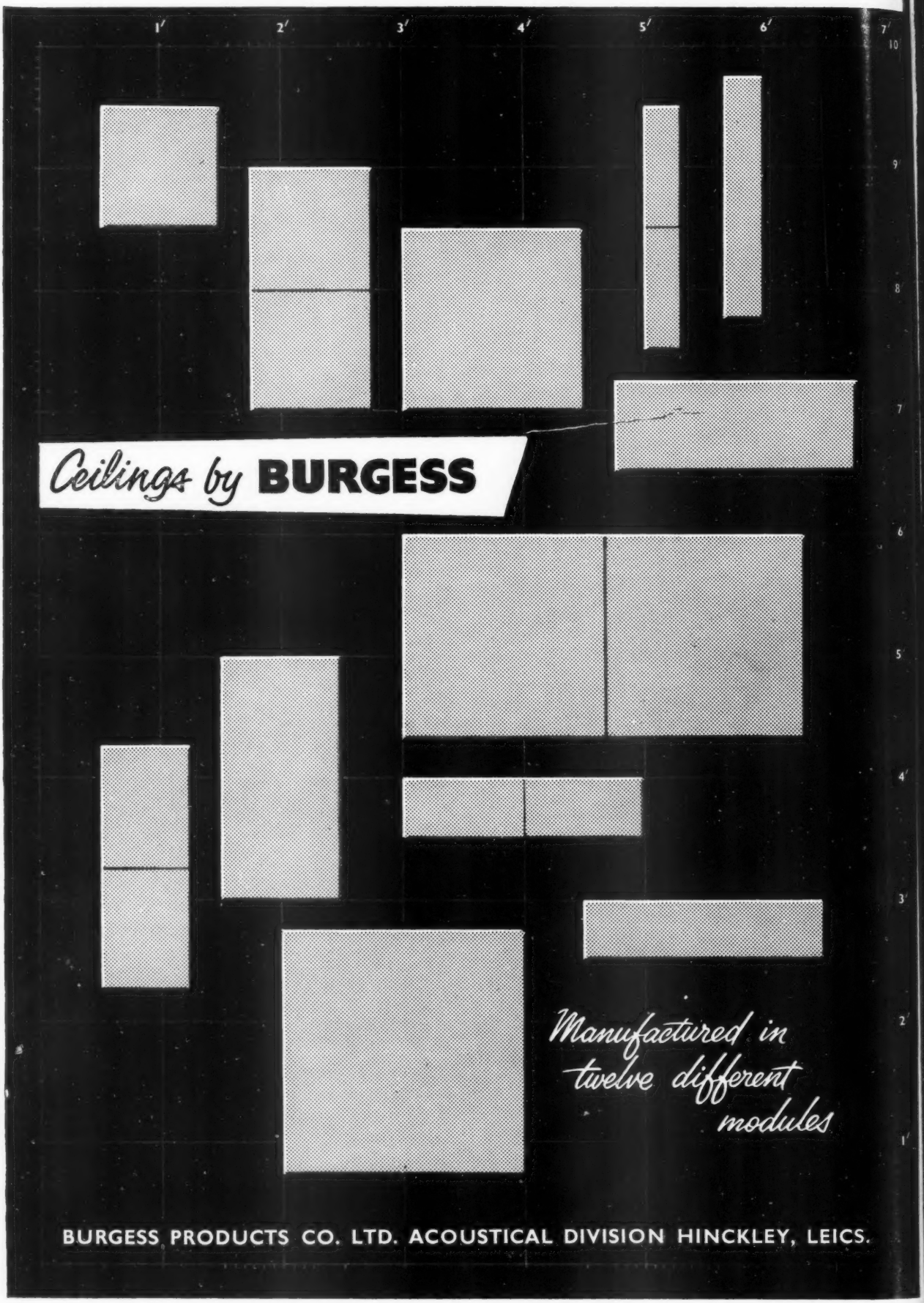
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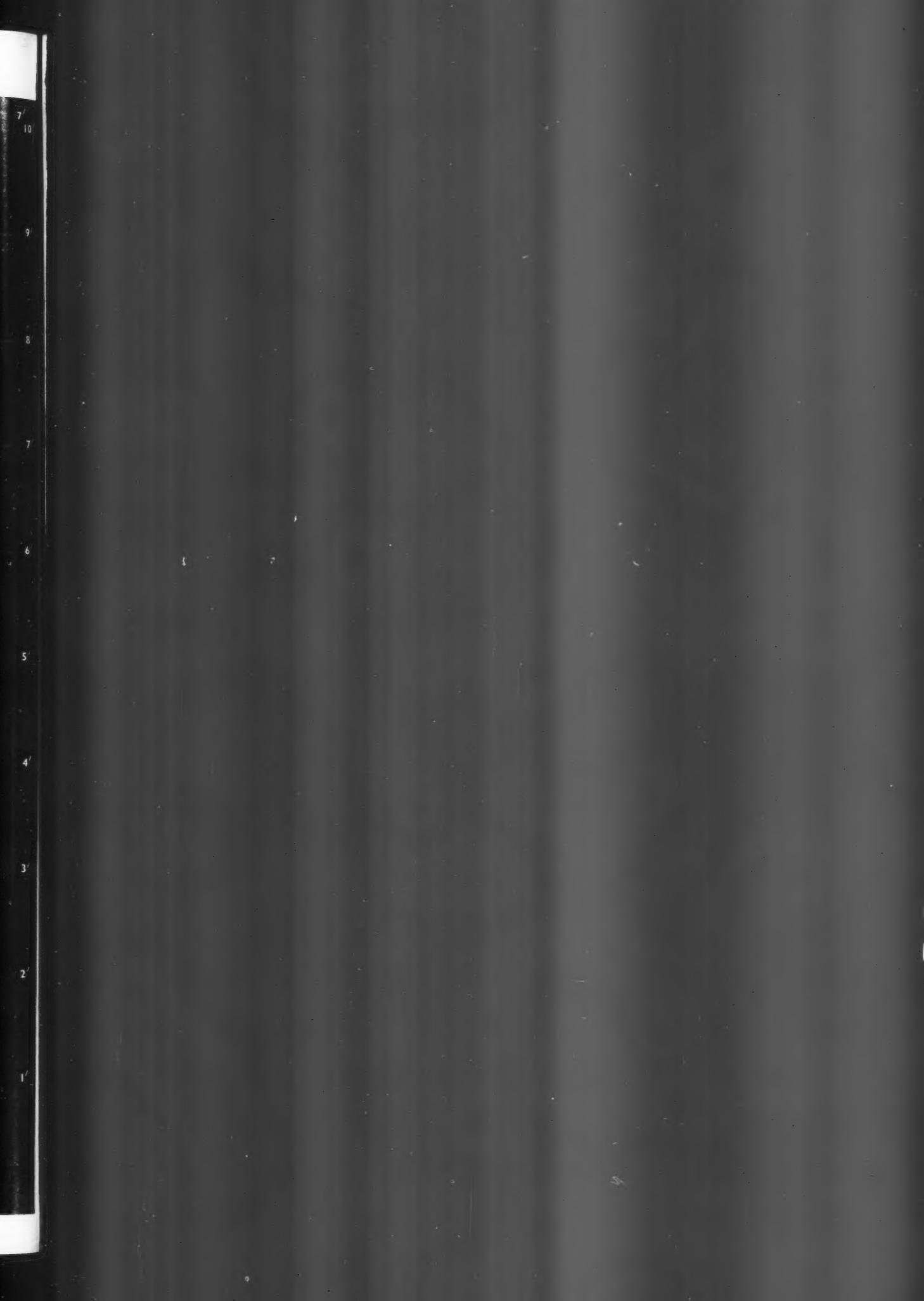
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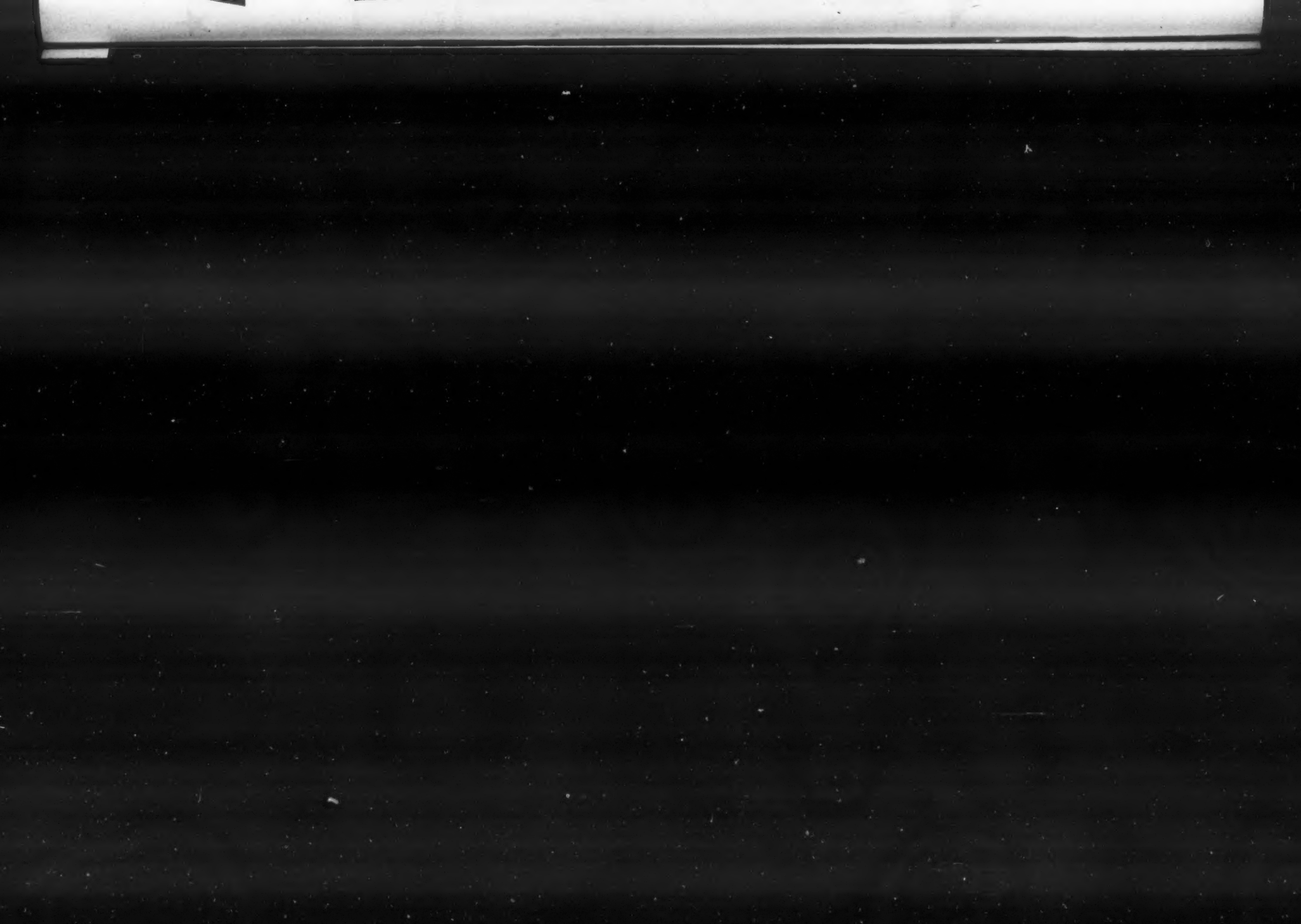
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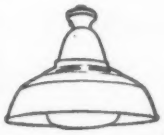
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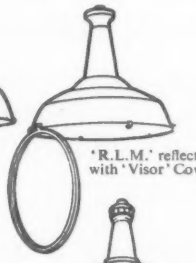
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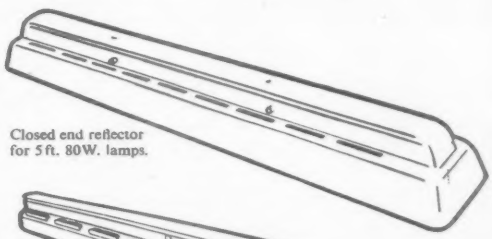
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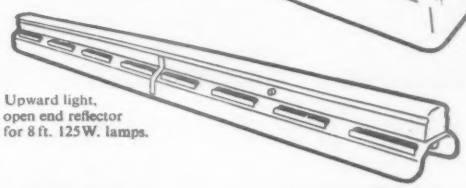
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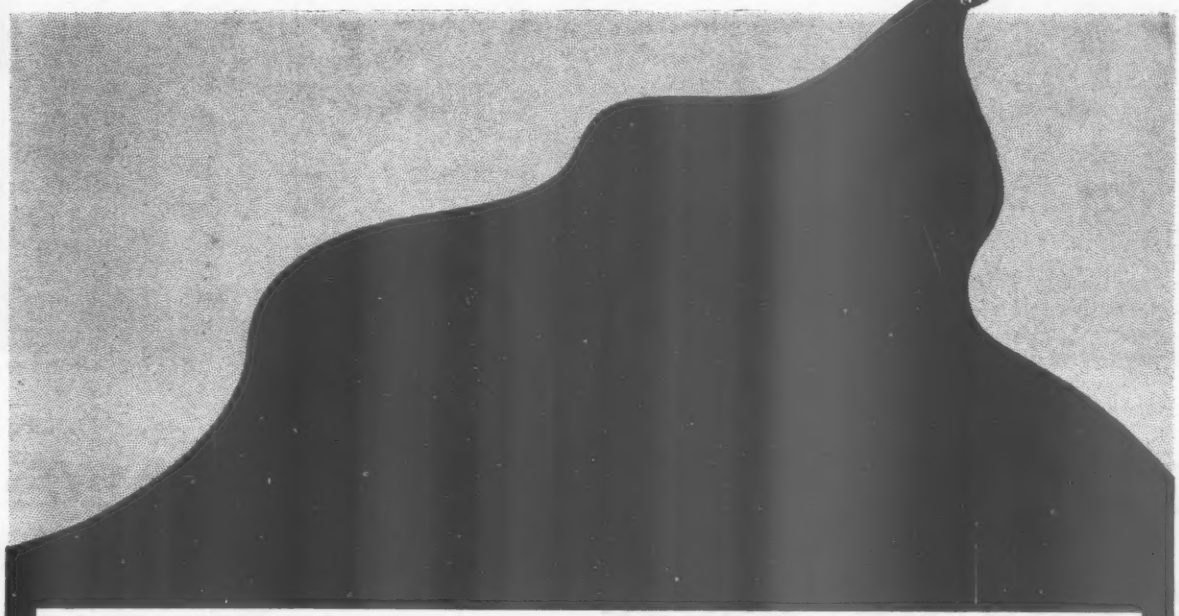
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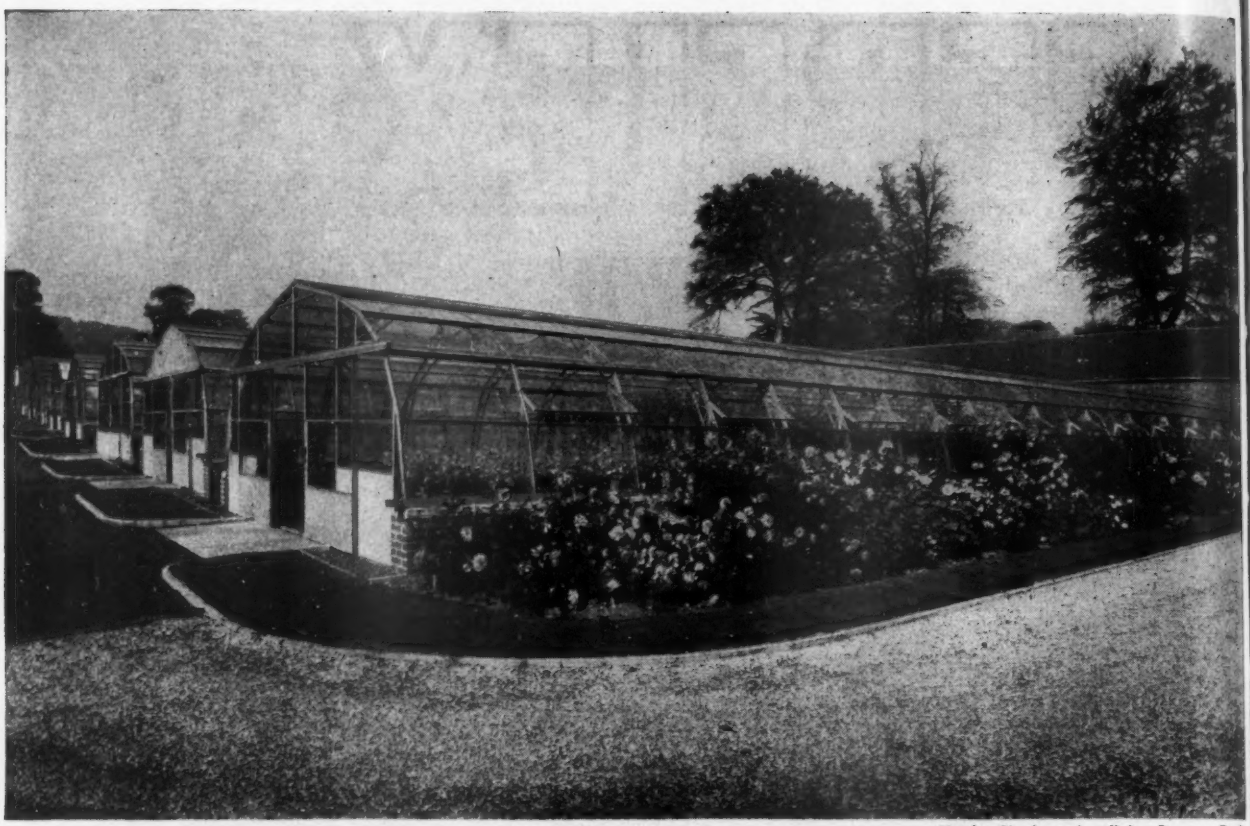


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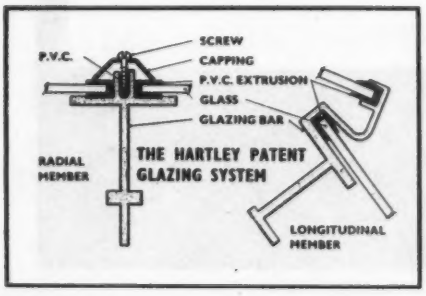
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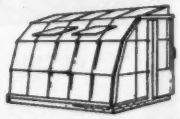


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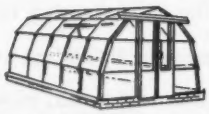
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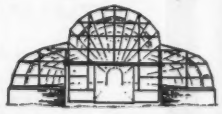
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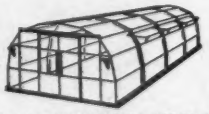
Hartley "7" 7'3" Wide 7'9" High (Lean-to)



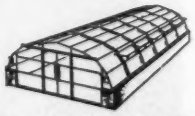
Hartley "10" 10'0" Wide, 7'1" High



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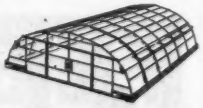
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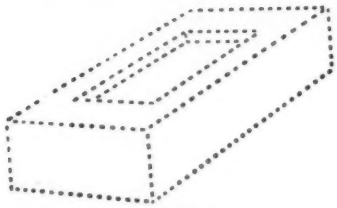
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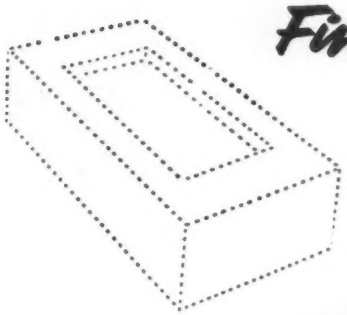


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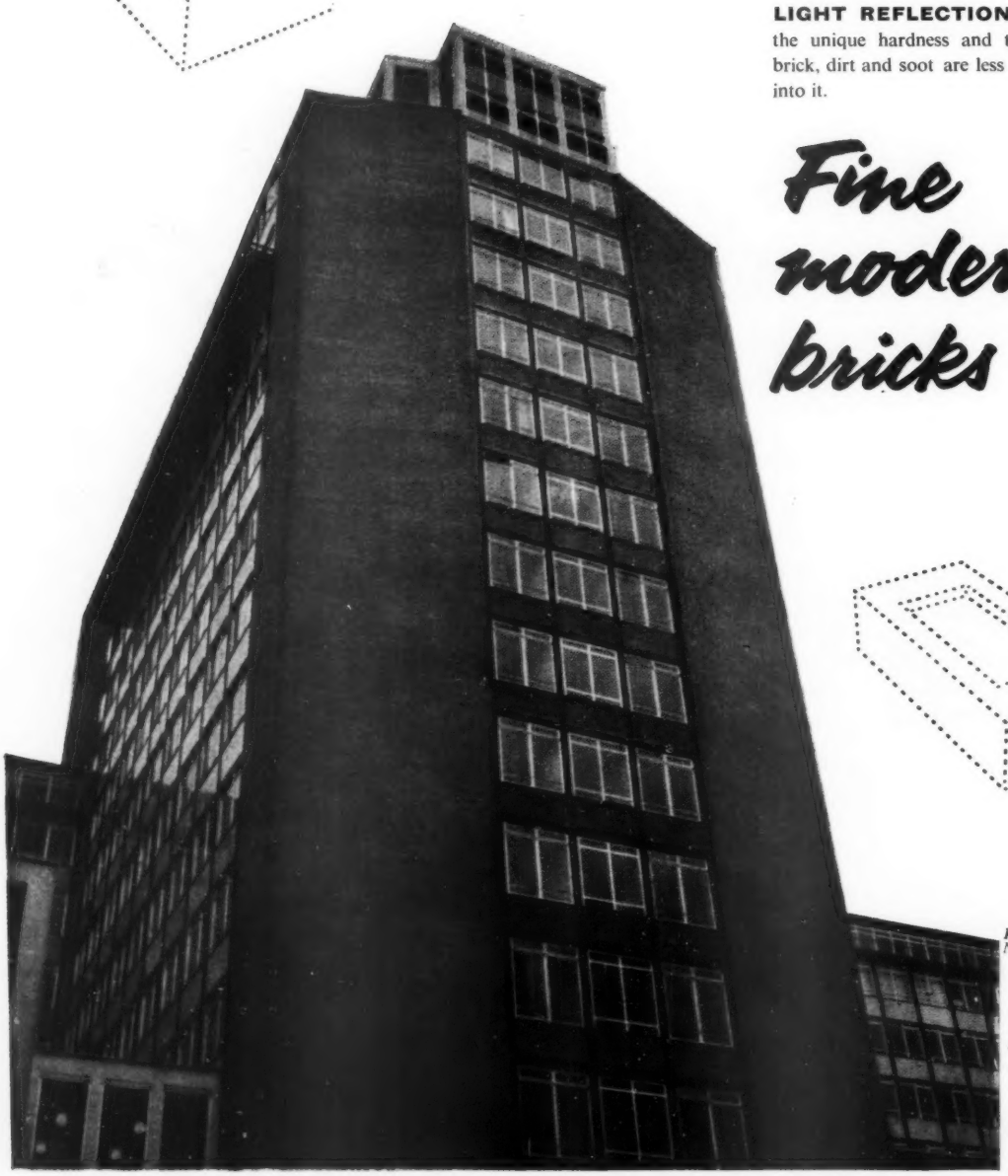


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Fine modern bricks



Bowater House, Knightsbridge, S.W.1. No 90 Lilac 2" Bricks used for facing the tower block.

Architects : Guy Morgan & Partners. Photo by courtesy of The Bowater Organisation.

Manufactured by **CAPE BUILDING PRODUCTS LTD · COWLEY BRIDGE WORKS · UXBRIDGE · MIDDX**

A subsidiary of Cape Asbestos Co., Ltd.

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UBI

Take a look at your secretary's shoes...



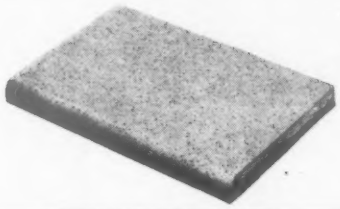
Chances are they will be poised anything up to $4\frac{1}{2}$" from the floor! ... one slight slip could — and sometimes does — result in unnecessary disaster.

The task of preventing such accidents on staircases is a special one, Altro being the name closely associated with it. For many years this company has directed its efforts towards producing non-slip treads and nosings, paying special attention to safer methods of fixing.

THE THREE MAIN ALTRO SAFETY PRODUCTS ARE:-

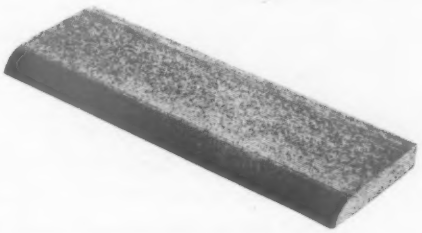
PRESTILES

These are pressed concrete tiles containing Altro (aluminium oxide) abrasive and quartz aggregate. They remain non-slip wet or dry and are extremely hard wearing.



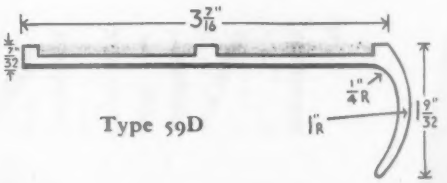
SAFETY TREADS AND INSERTS

These are made from Altro abrasive bonded with pure P.V.C., suitable for any stairs — concrete, wood, steel, etc., exterior or interior. They remain resistant to oil and other chemicals.



ALUMINIUM SAFETY NOSINGS

Standard aluminium sections with Safety Tread Inserts. No grooves or projections are necessary.



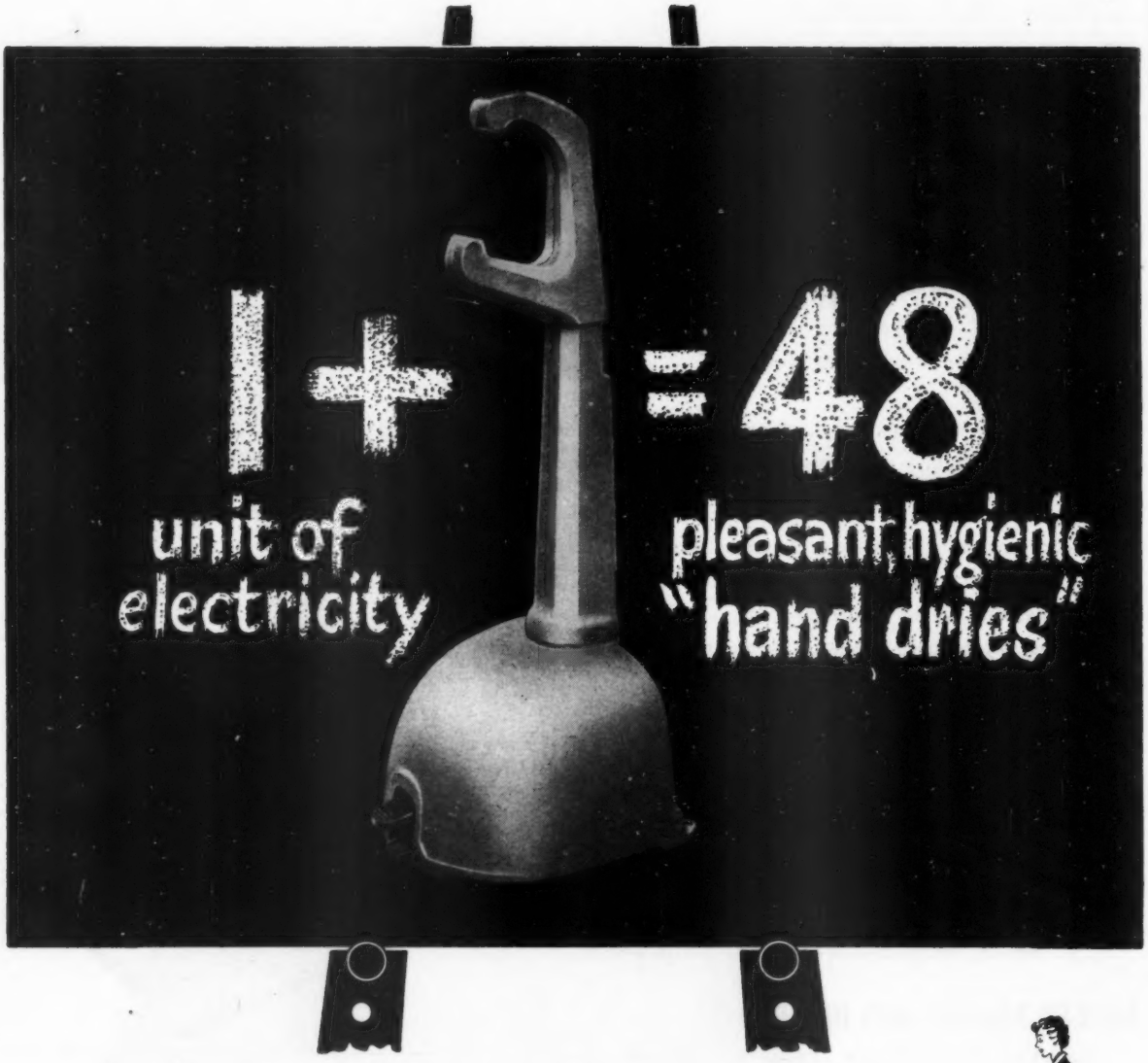
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Please write for technical details of all ALTRO safety products to:—

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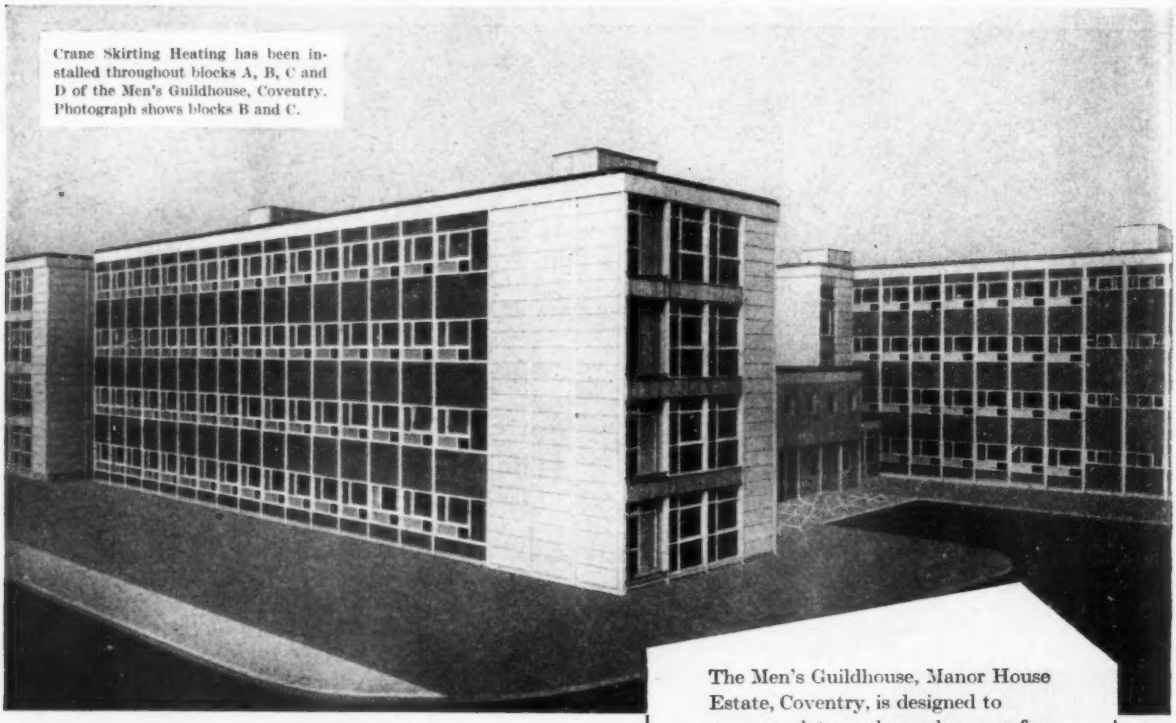
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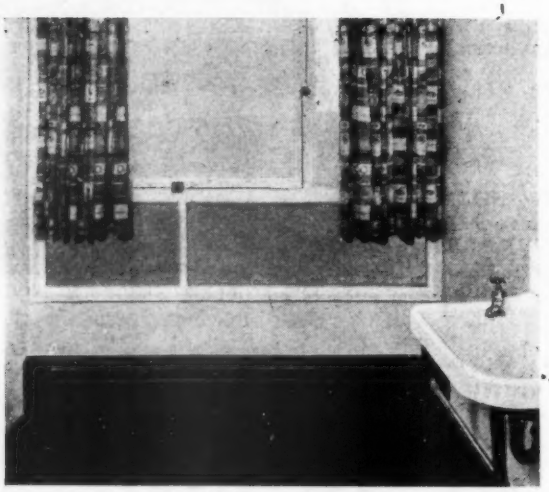


Crane Skirting Heating has been installed throughout blocks A, B, C and D of the Men's Guildhouse, Coventry. Photograph shows blocks B and C.

Once again, skirting heating by Crane

The Men's Guildhouse, Manor House Estate, Coventry, is designed to accommodate workers who come from far afield. Modern not only in appearance but in construction, it is a remarkable example of the successful housing of four hundred men under pleasant conditions within a prescribed area. No less modern is the heating system. Crane Skirting Heating, 9 inch Type RC (Radiant-Convector), has been installed throughout, providing an even warmth everywhere, with no cold spots and with a great saving of space. There is also **Type R (Radiant) which, in addition to the 6-inch size, has lately been made available in the 9-inch size for situations requiring additional heating surface.** The panels are in 2-foot and 1-foot lengths and are made in cast iron for resistance to damage. Skirting heating is the perfect modern method of space heating.

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B 24

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and simplest way
of fixing
this...



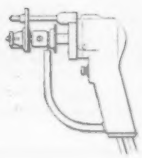
to this?...

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Standard Maclean make a good Metal Window

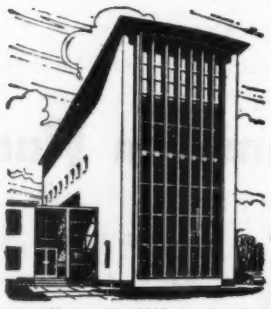
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A Standard Maclean Metal Window installation.

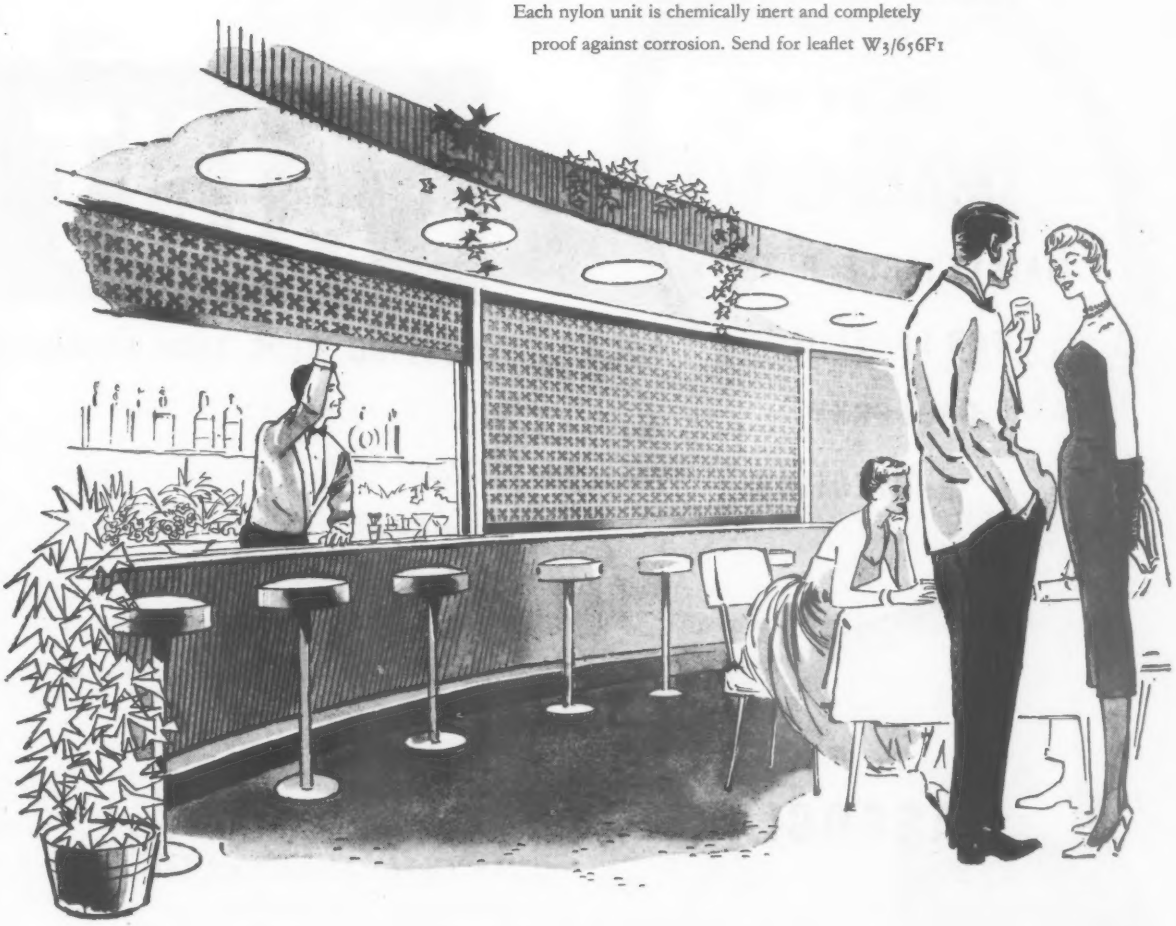
OC6



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EARLY CO-OPERATION WILL ENSURE GOOD DESIGN

Today's materials and methods ensure easier, quicker decoration

There used to be a time, not so very long ago, when the occupation of a new house meant extended discomfort. Unattractive distempered walls were accepted as inevitable, damp living conditions were a certainty and the prospect of a further domestic upheaval (when final decoration was completed) disturbed even the most stolid. Months would elapse before one's home was really dry, warm and fit to live in.

Modern materials and techniques have changed all that. Today, architects and builders specify and use factory-made components that are completely water-free *before* delivery to site.

Employed as linings to ceilings and walls, specially designed building boards exclude damp and moisture. Ready-made partitions replace brick dividing walls, occupy less space and are lighter in weight. Factory-made cornices cut out wet work and save considerable time and labour. Since these and other products are "dry", painting and papering can be carried out immediately after fixing. There are no delays, jobs are finished ahead of schedule and houses are warm, dry and fully decorated on completion.

FOR MORE INFORMATION SEE OVERLEAF

BRITISH PLASTER BOARD HOUSE DE

Paramount PLASTERBOARD
PLAIN OR INSULATING

The ideal building board—strong, light, rigid, fire-resisting and providing thermal and sound insulation. Does not expand or contract, warp or buckle.
Because it has a core of Gypsum, the mineral that cannot burn, Paramount Plasterboard is the safest and most economical lining for walls, ceilings and partitions. It costs less than 4d. per sq. ft. In addition, the insulating type offers excellent thermal insulation for less than one penny per square foot extra.
The ivory surface of Plain or Insulating Paramount Plasterboard can be painted or distempered without any special preliminary treatment. For papering, it is recommended that the surface should be specially sized first to allow for easy removal of the existing wallpaper when redecorating becomes necessary—further details on application.

Paramount DRY PARTITION

Consists of two Paramount Plasterboards enclosing a square-celled fibrous interior. Strong, light in weight, space-saving, highly resistant to fire and possessing thermal and sound insulating properties, Paramount Dry Partition is the perfect ready-made wall for dividing interiors or lining external walls.
The surfaces of Paramount Dry Partition are prepared to receive decoration of any kind, thus saving the cost of special preliminary treatment. On request, this partition can also be supplied with surfaces ready for Gypsum plaster application.

Paramount COVE

A factory-made cornice which is, in effect, plasterboard moulded into a cove section. Due to its Gypsum core, it is highly fire-resisting and does not expand or contract. It can easily be cut to length and mitred with a fine tooth saw.
Paramount Cove is an excellent means of masking unsightly cracks at the junctions of walls and ceilings. Its simple but distinctive lines greatly improve the appearance of any room.
Paramount Cove can be nailed direct to timber grounds or may be fixed by plaster wads and nails. Its surfaces are prepared for direct decoration.

Thistle GYPSUM PLASTERS

These plasters have the greatest possible uniformity in setting time and workability. No delay is involved in waiting for undercoats to mature. The finishing coat can be applied on the same day. Once set, these plasters are inert. Consequently, there is no shrinkage or cracking.
Application is simple and drying is quick. When dry, Thistle Plasters provide a perfect base for decoration, including the most delicate pastel shades.

Blue Hawk FLOORING

Consisting of tiles 9 inches square with a hardwood surface and a resin-bonded sand base, Blue Hawk Flooring combines attractive appearance with strength and durability.
It resists movement, withstands damp, is unaffected by dry rot, mould and other micro-organisms, does not support combustion and is moderate in cost.
Blue Hawk Flooring is easy to lay — with a cement mortar bed directly on a concrete sub-floor—thus saving the cost of an accurate screed. As easy as laying quarry floor tiles, but the surface is attractive grained hardwood.

USE DECORATION PRODUCTS

BLUE HAWK PRODUCTS



External walls of new house dry lined with Paramount Plasterboard.

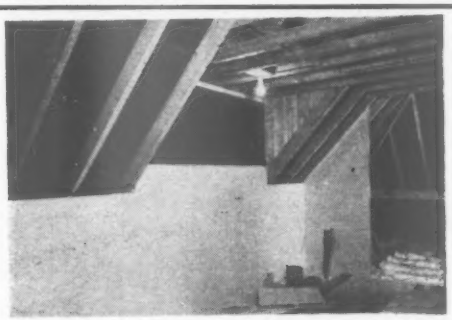
Interior of modern bungalow showing Paramount Plasterboard ceilings.

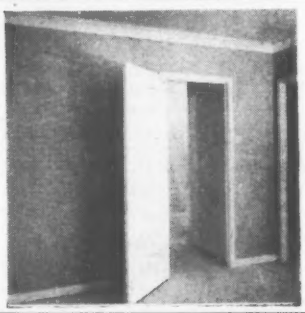




Paramount dry Partition used as an internal lining in a modern house.

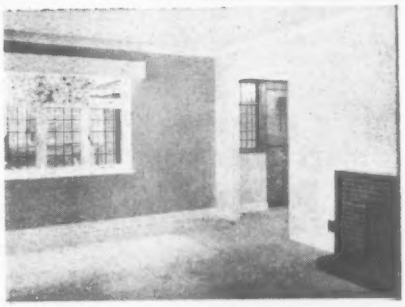
Paramount Dry Partition used to convert a loft into an additional room.

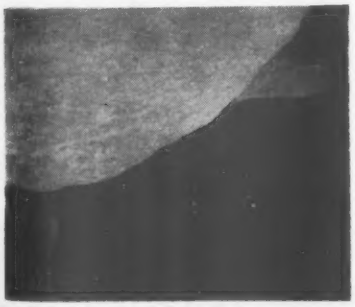




Interior of contemporary home showing Paramount Cove in position.

Paramount Cove improves the appearance of any room.





Thistle Plaster applied over scrimmed joints.

Thistle Plaster being used to fill gaps between two plasterboards.





Blue Hawk Flooring in the lounge of a modern home.

The lounge of a country home modernised with Blue Hawk Flooring.



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gypsum/fire-resisting products includes



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Paramount

- ☐ Plasterboard
- ☐ Insulating Plasterboard
- ☐ ⅜" Plasterboard for Two-inch Solid Partition
- ☐ Dry Partition
- ☐ Cove
- ☐ Water Resisting Plasterboard
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This advertisement is produced to B.S. 1311, 1956, governing Trade & Technical publications.

AP 161

TOMO double-glazing at London Airport



Administrative and operations offices for aviation fuel supplies at London Airport, half of which are occupied by Shell-Mex & B.P. Ltd. and the other by Esso Petroleum Co. Ltd. Architect: Frederick Gibberd, C.B.E., F.R.I.B.A., M.T.P.I.

We think you'll agree that the appearance of these attractive offices at London Airport is enhanced by their TOMO double-glazed WINDOWS. But that's only a small part of the story. TOMO double-glazing also offers excellent thermal-efficiency values, remarkable sound-reduction properties, finely-controlled ventilation and total indoor window-cleaning.

On the subject of thermal efficiency, we should like to refer you to the report of a recent B.R.S. test quoted on the right. It speaks volumes.

When you work within whistling distance of aircraft, sound reduction becomes a matter of vital importance. Here TOMO WINDOWS score heavily. The total reduction in sound level depends finally, of course, on the thickness of glass employed and the space between panes. Using 32-ounce glass spaced at 1⅞in., TOMO double-glazing gives a reduction of approximately 40 decibels and will, we hope, save Shell-Mex and Esso personnel not a few headaches in the future.

One last point, TOMO double-glazed WINDOWS are suitable for inward or outward opening and can be top-hung, bottom-hung, side-hung or pivot-hung. Any further information you may require will be gladly supplied.

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—purpose-made in finest timbers to Architect's size, style and finish

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1. Welded tubular or angle roof trusses for wall or stanchion mounting in these designs:

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(*b*) Northlight and Sawtooth (up to 40′ 0″ span).
(*c*) Low Pitch and Flat Roof Beams (up to 60′ 0″ span).
(*d*) Ridge Beam Assemblies (spans up to 60′ 0″ and Beams up to 120′ 0″ long).

2. L.P.M. (Low Pitch Monitor) Roof of 5° pitch, welded tube with channel rafters, optional monitor or ridge lantern, spans in 3′ 4″ increments from 10′ 0″ to 60′ 0″, wall or stanchion mounting, clad in steel or aluminium decking, insulation and mineral felt.

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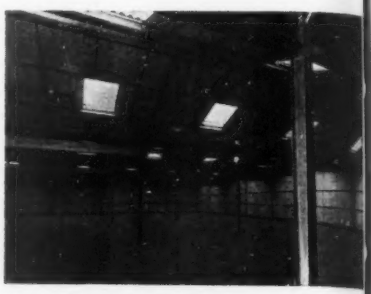
Sliding and double opening doors. Roller shutters. Folding doors. Patent glazing or individual rooflights. Standard window frames (steel or timber). Timber or metal framed curtain walling. Ventilation by proprietary systems. Linings to comply with Thermal Insulation (Industrial Buildings) Act, 1957.

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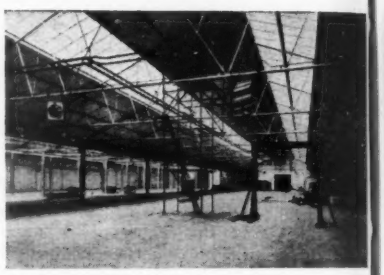
Unlined roofs on stanchions, including erection	...	**6**/– *to* **8**/– *per sq. ft.*
Lined roofs on stanchions, including erection	...	**8**/– *to* **11**/– ,, ,,
Complete building shells, lined sheeting Including erection on prepared foundations	...	**8**/– *to* **14**/– ,, ,,
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A multi-span, lined building for Textile Storage, Manchester.



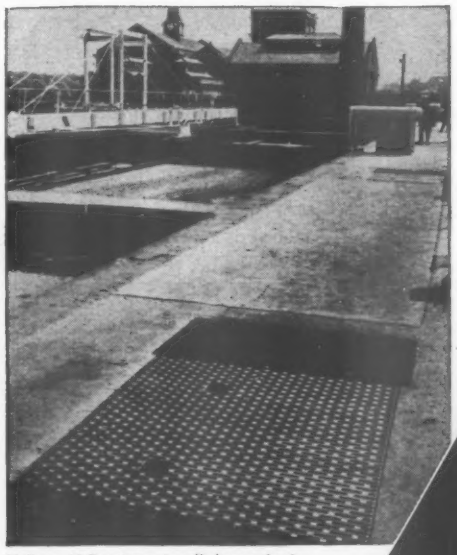
A new engineering works at Bristol.



Steelwork for special Crane Building.



P.3 (R.S.J. Portal Frame) Building in Coventry.



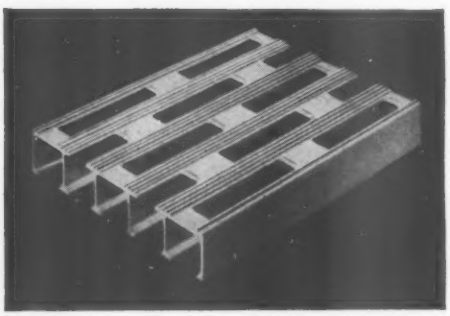
Alaflor grid flooring as installed over the de-sludging valve chambers of the sedimentation tanks at Derby Corporation reconstructed sewage disposal works.
Consulting Engineers: Messrs. J. D. & D. M. Watson.
Photograph reproduced by courtesy of Mr. M. L. Francis, F.R.I.C.S., M.I.Mun.E., Borough Engineer and Surveyor.

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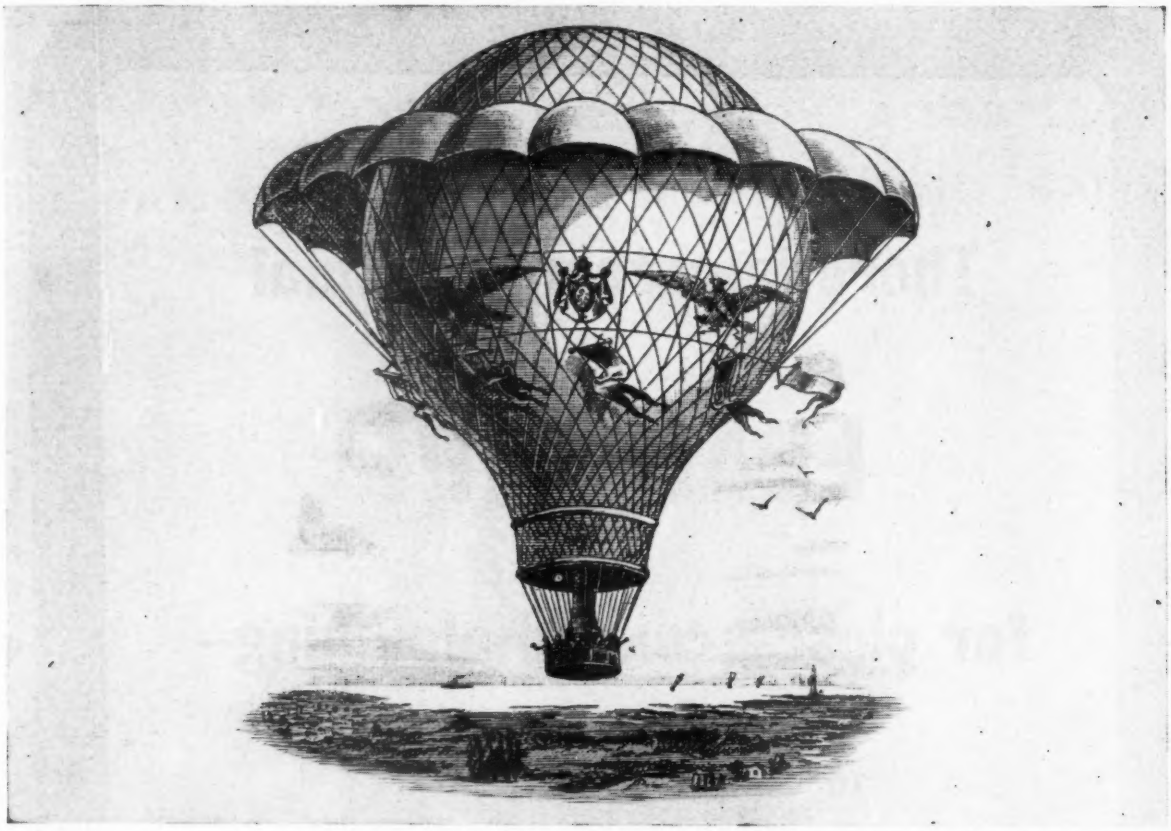
THE LEAD SHEET AND PIPE TECHNICAL INFORMATION BUREAU

advises on the use of Lead in building work. Most of the many uses are detailed in the Association's publications, and in addition the Bureau's technical officers are always glad to give individual assistance.

LEAD DEVELOPMENT ASSOCIATION

18, ADAM STREET, LONDON, W.C.2. *Telegrams:* Leadevep, Rand, London. *Telephone:* WHItehall 4175

B.1



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MUST COME DOWN!

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L.E.F. Raising and Lowering gear is the perfect answer to every problem posed by interior lighting installations in which the fitting must of necessity be out of reach and, consequently, tricky to service.

This gear enables maintenance staff to bring lighting fittings down to floor level so that they can be dealt with quickly and conveniently. It out-dates cumbersome methods and is most economical in time and labour.

When you have a lighting problem, remember that it is most important to discuss your needs with L.E.F. at the planning stage; first to specify your technical requirements and secondly, to ensure suitable delivery.



NEW INNER TEMPLE

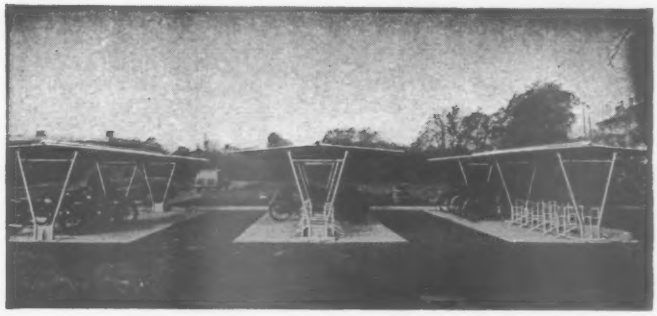
This beautiful hall is lighted by ten heavy chandeliers which are serviced by means of L.E.F. Raising and Lowering Gear. L.E.F. were consulted at an early stage during building by the Architects (Sir Hubert Worthington, R.A., and T. W. Sutcliffe Esq., A.R.I.B.A.,) and the Contractors (Bower Engineering Works Ltd.) with the result that they were able to supply equipment "built in" to the ceiling.

LONDON ELECTRIC FIRM LTD. South Croydon, Surrey. Telephone: Uplands 4871

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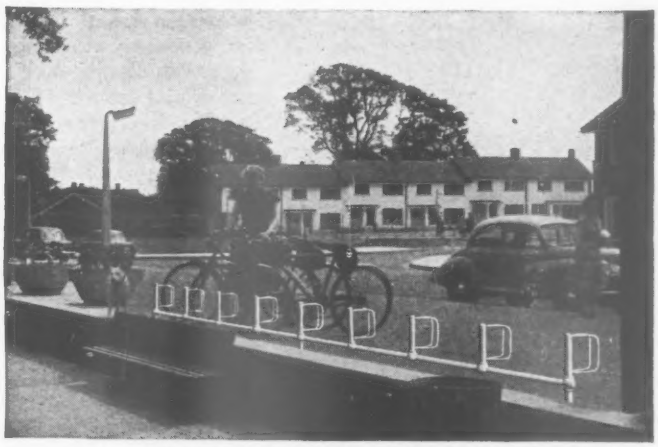
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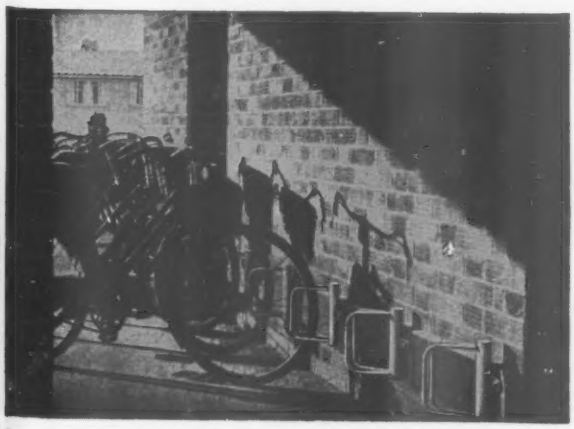
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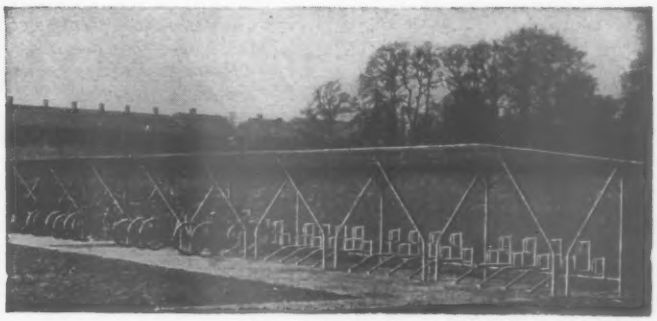
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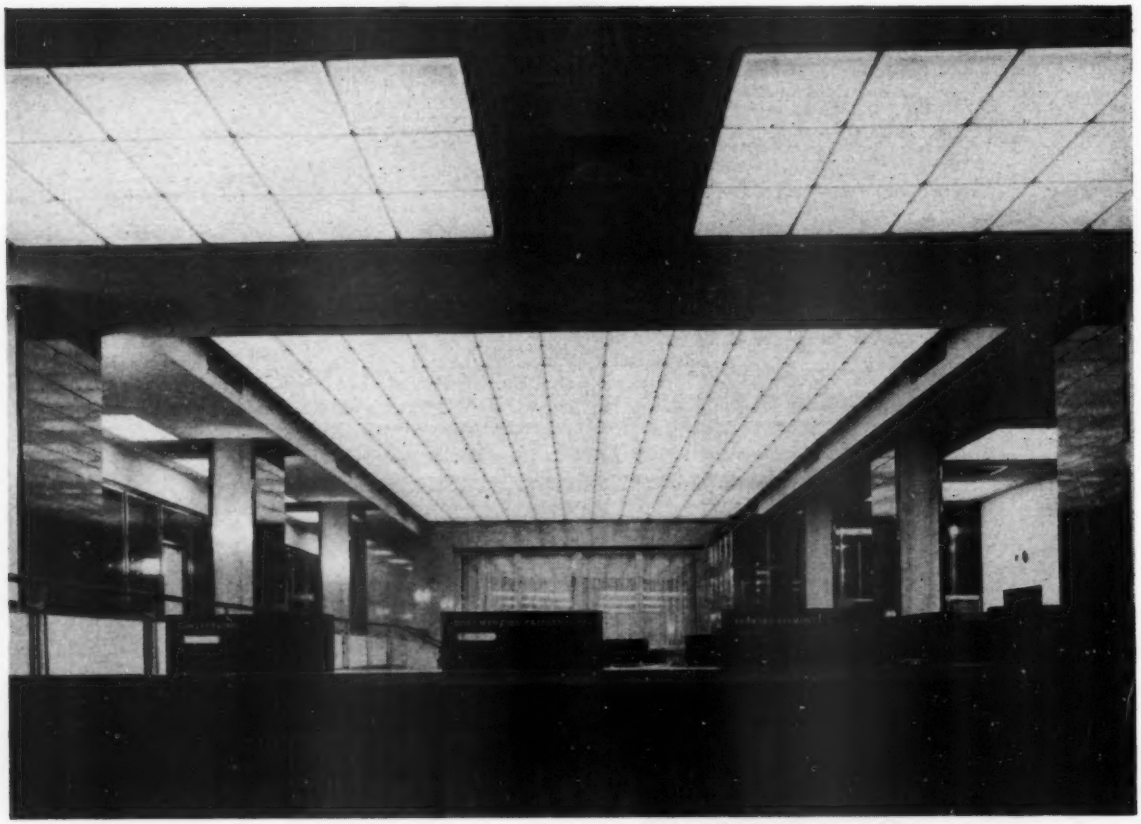


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THE CEILING THAT LIGHTS

Lumenated Ceiling for a modern City bank

Decorative effect and lighting efficiency are achieved throughout the Bucklersbury House premises of the Bankers Trust Company of New York by installing 3,000 sq ft of Lumenated Module Ceiling. The great scope for contemporary lighting offered by a Lumenated Ceiling system is increased with these 2 ft square modules which fit in perfectly with the design of this new bank. A stimulating environment for work areas, conference rooms and kitchens alike, is provided by this even, shadowless lighting which closely approaches natural daylight in quality. Glare-free lighting intensity of 40 lumens per sq ft at desk height minimises eye strain in the main working area. All conduits and electricity services are concealed within the ceiling cavity. Lumenated Ceilings are backed by a comprehensive after-sales maintenance service.



231 two-foot square Lumenated Module panels were used for the main working area of the bank. This modern lighting technique was specified by the architect Mr. Thomas Hamilton B.A., A.R.I.B.A. of Campbell Jones & Sons.

Full information from Lumenated Ceilings Limited and all branches of the General Electric Co. Ltd.

LUMENATED CEILINGS LIMITED

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TGA L69



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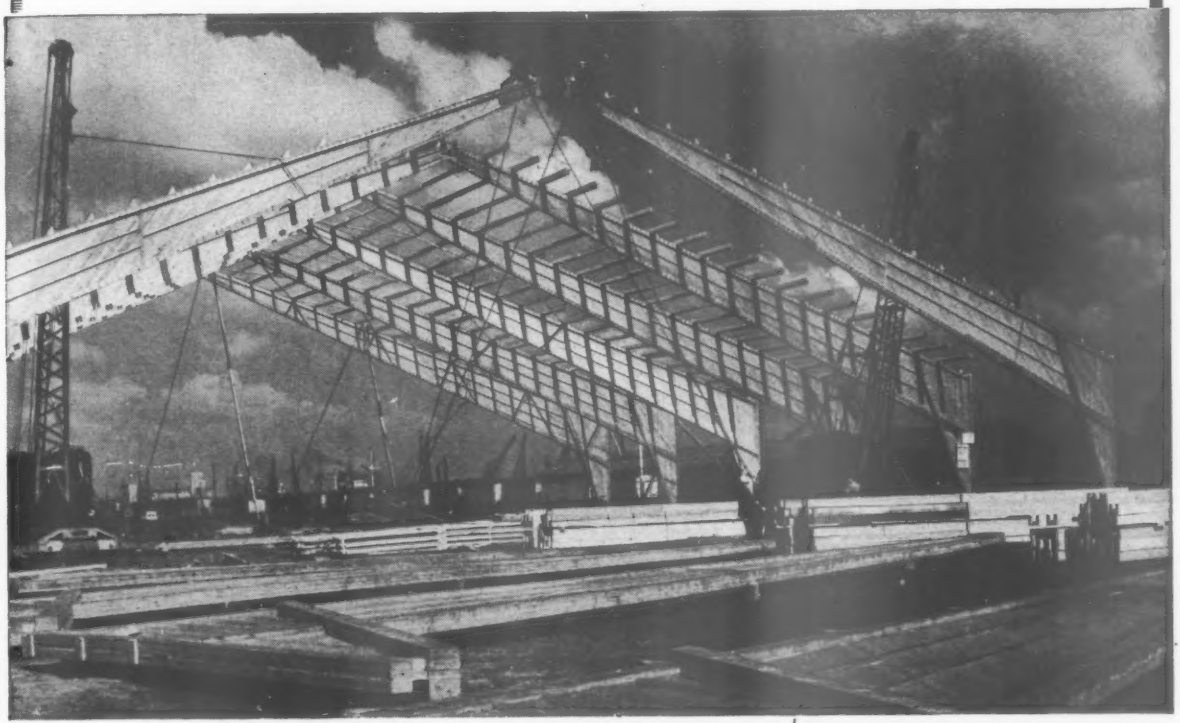
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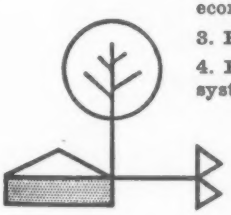
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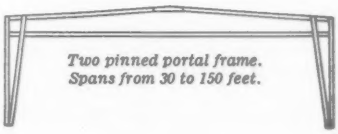
CVB-31



Ridge beam. Spans from 20 to 100 feet.



Northlight. Spans from 25 to 80 feet.



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Three pinned frame with vertical outer leg. Spans from 30 to 150 feet.



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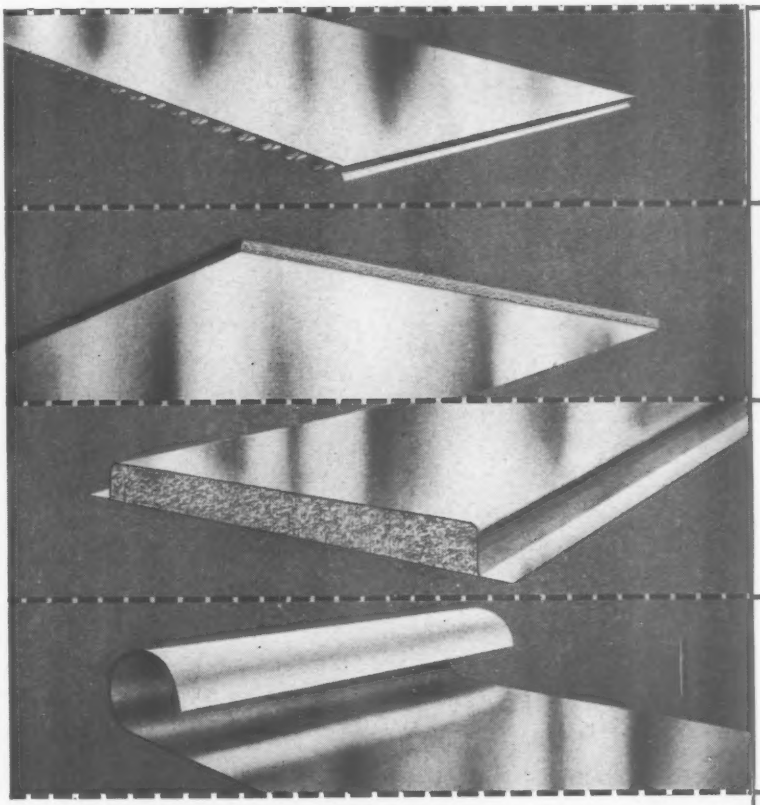
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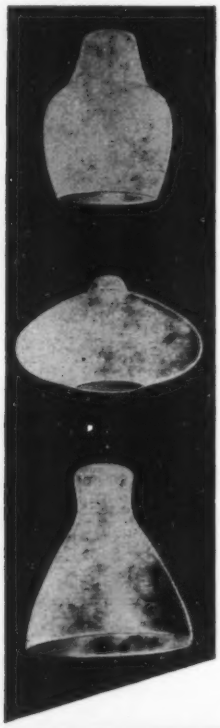
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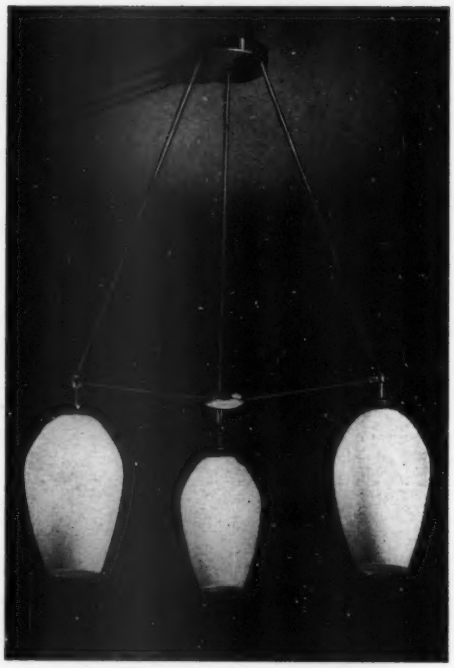


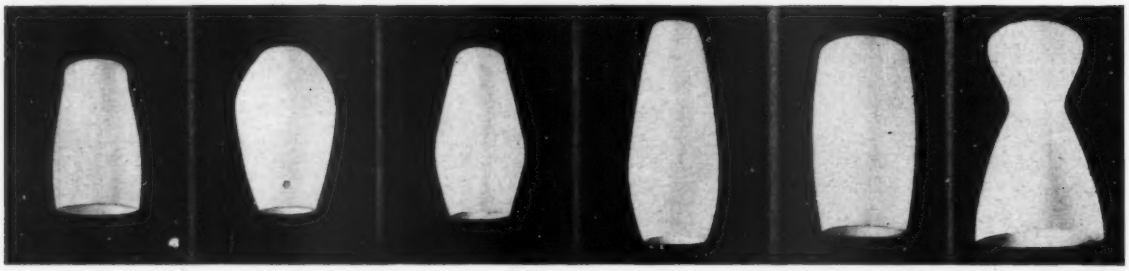
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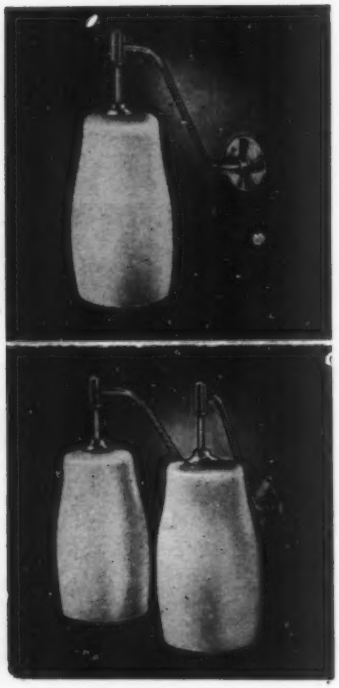
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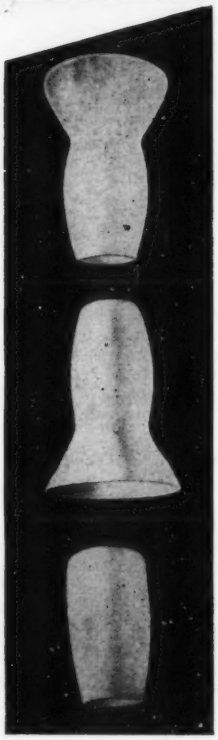


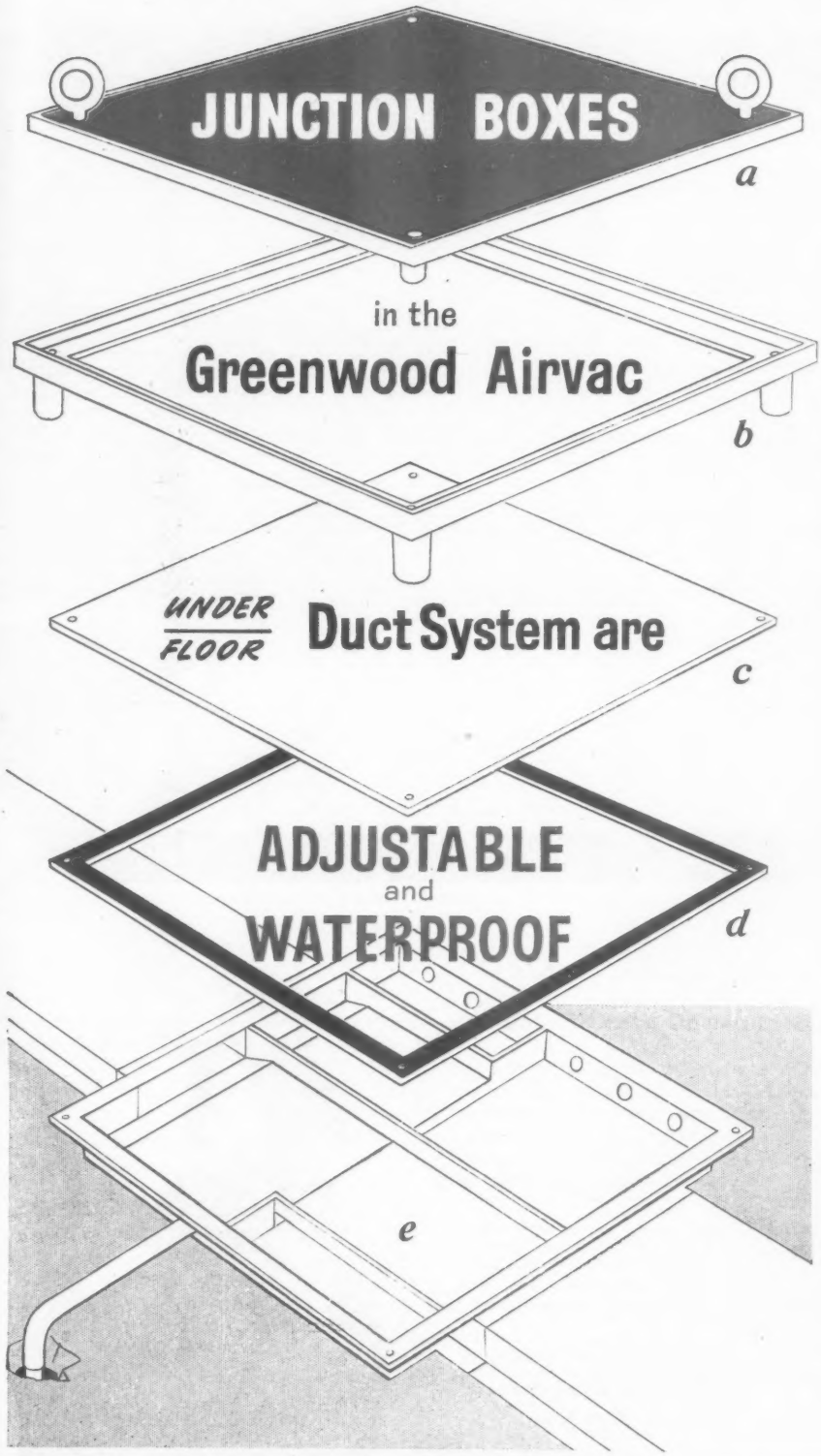
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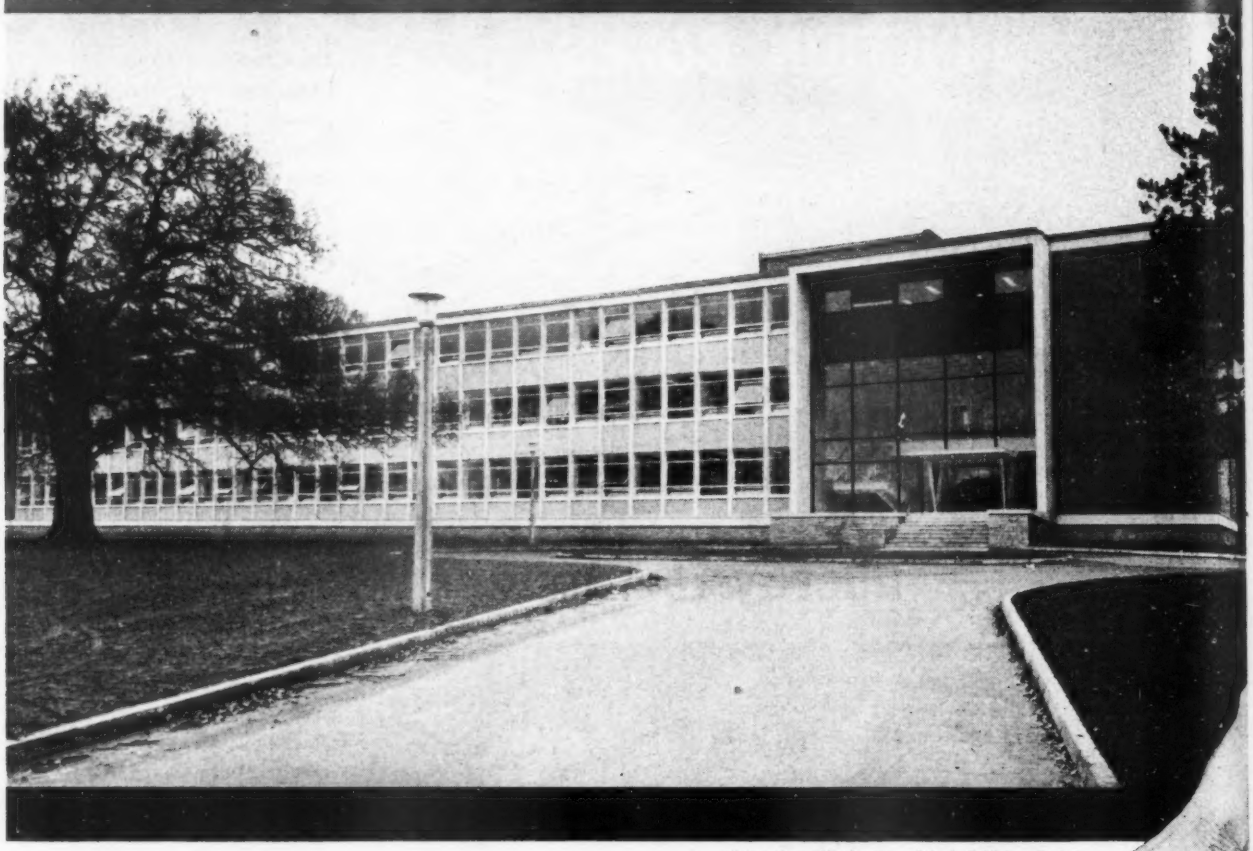
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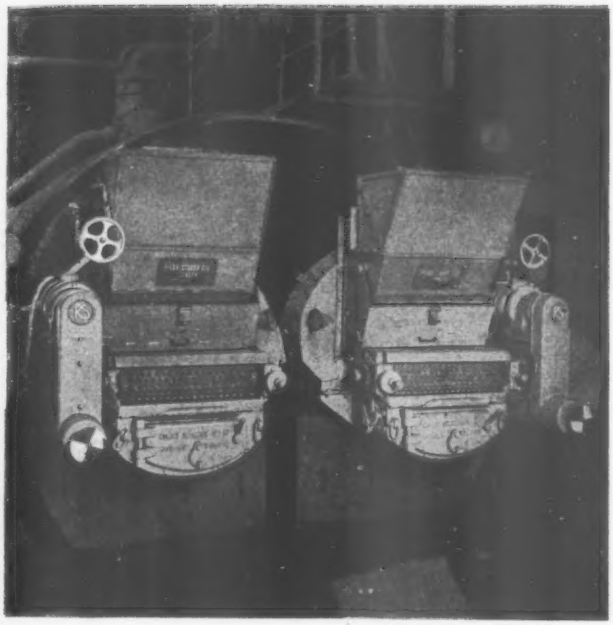
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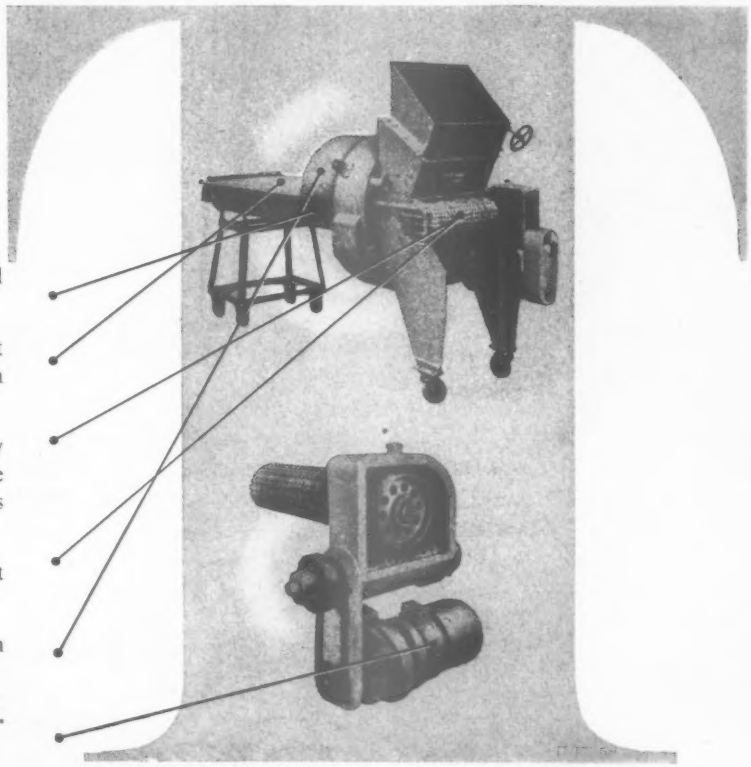
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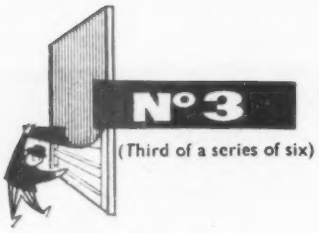
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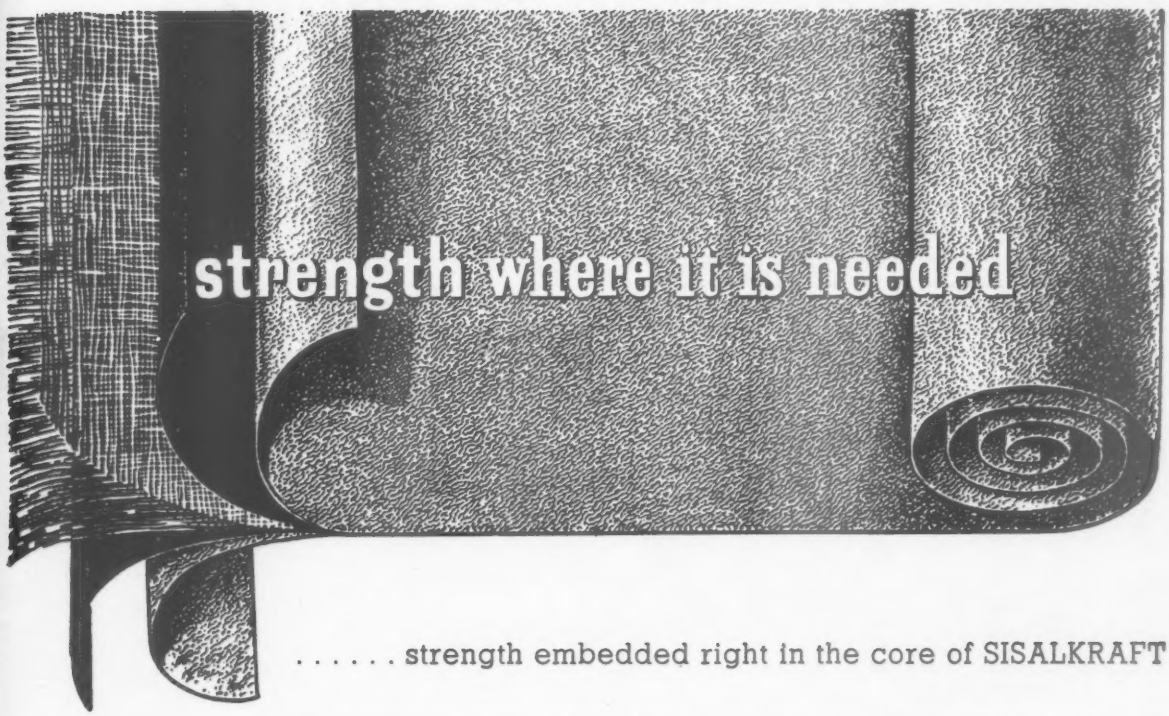
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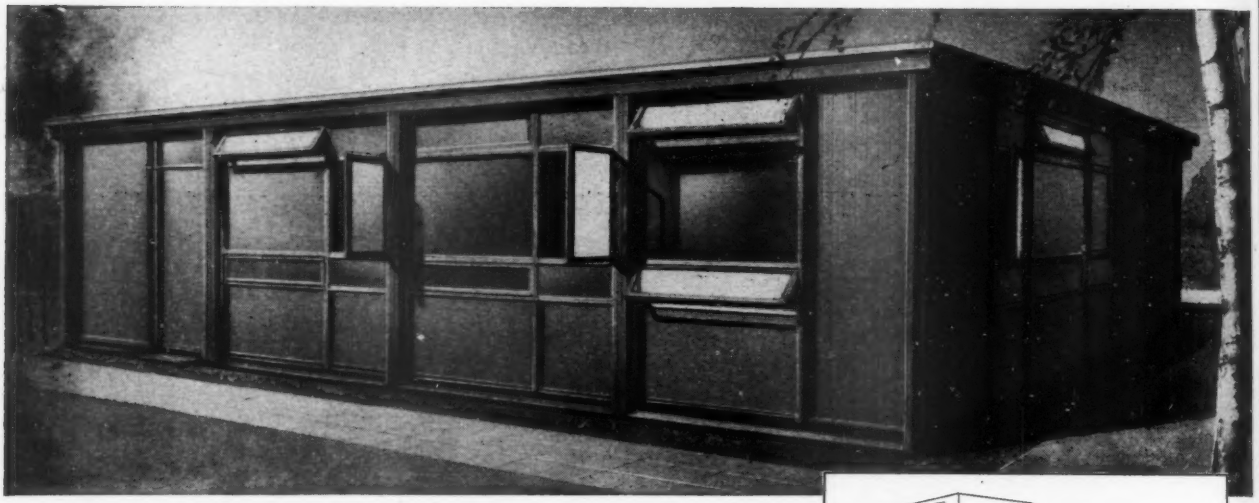
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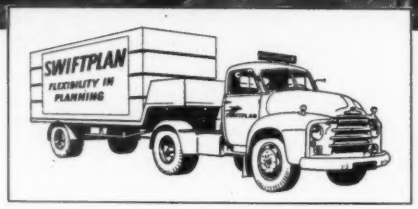
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Parkray 2 with back flue outlet fitted in brick surround. A soot door should be provided on the outside wall.

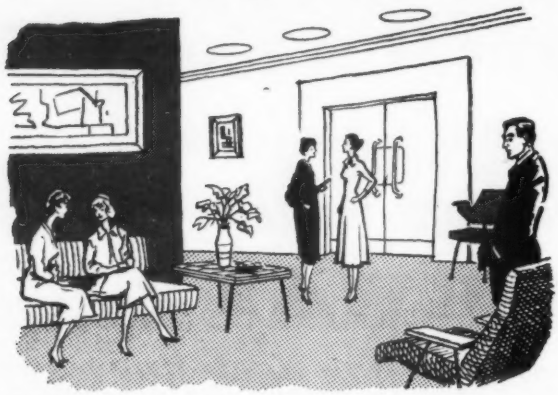
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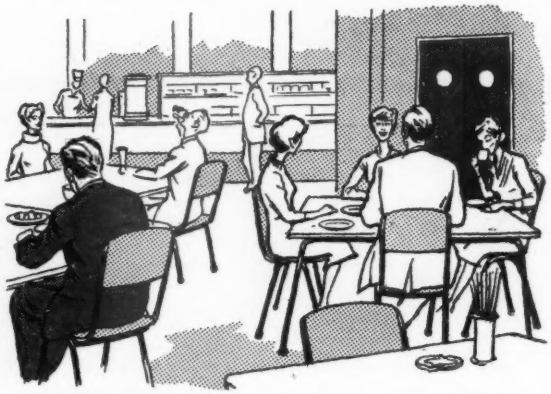
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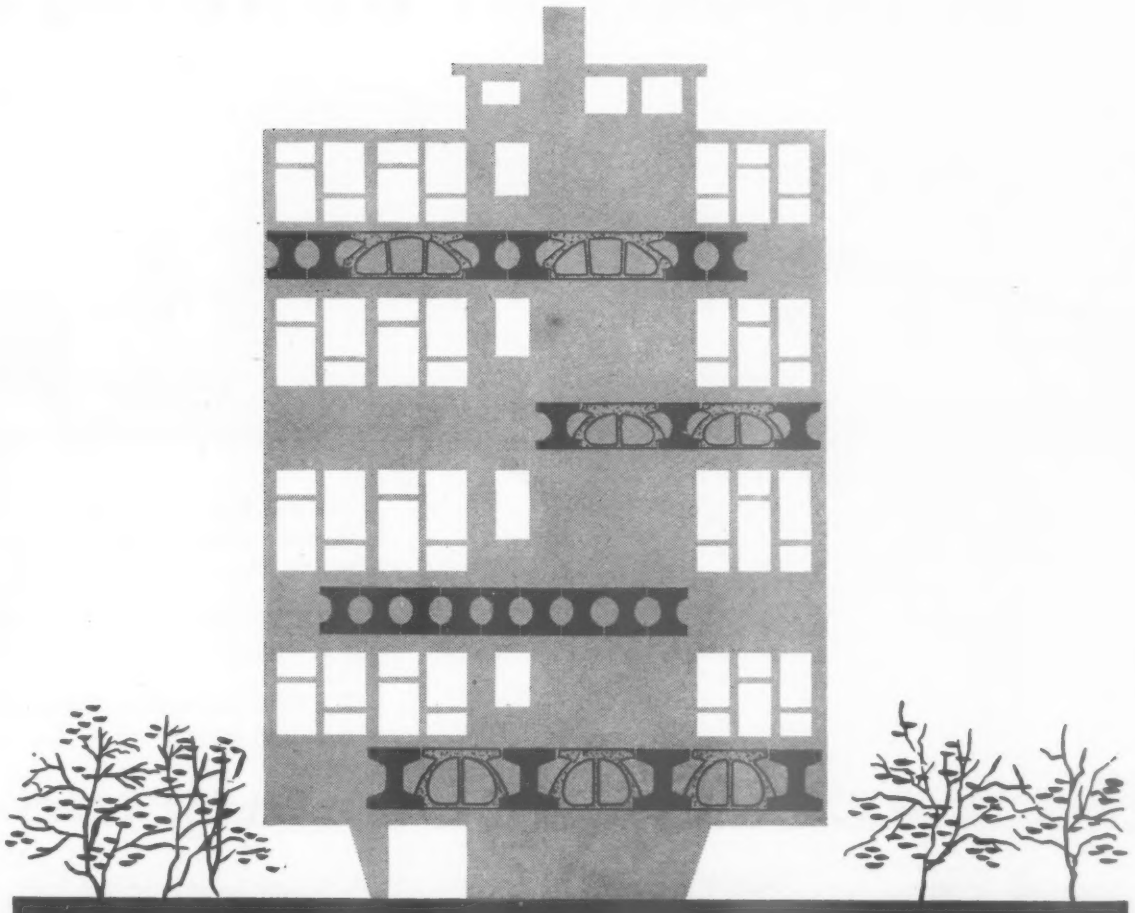
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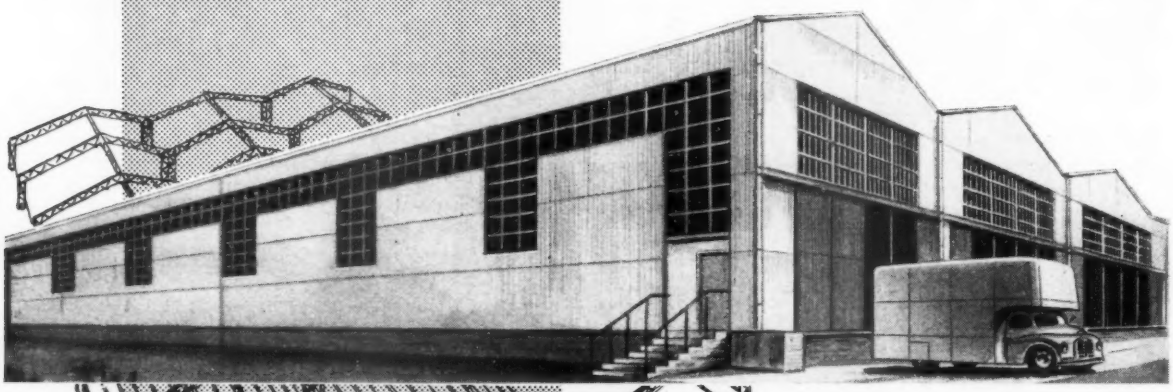
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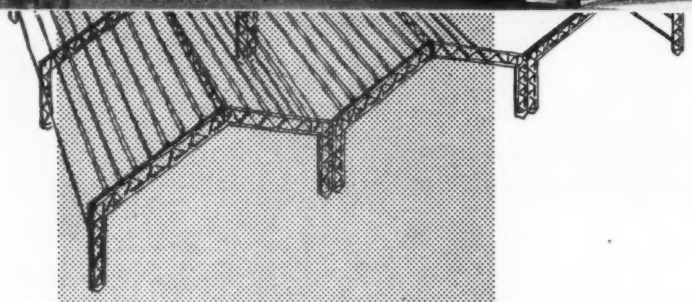
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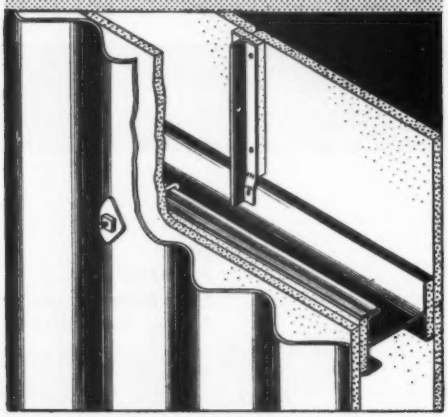


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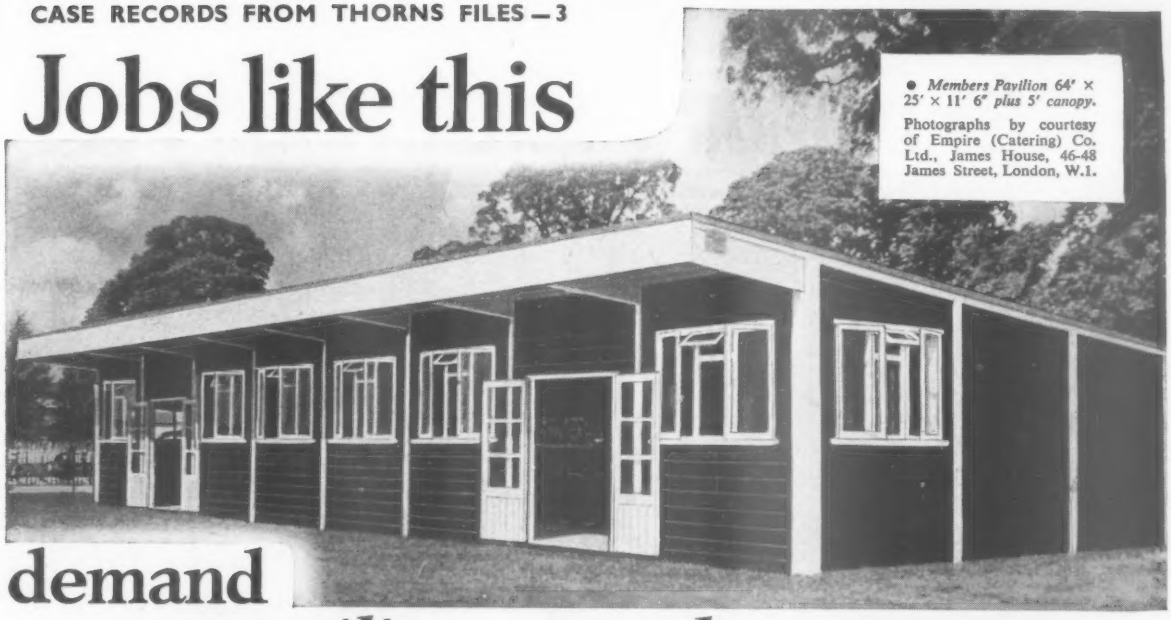
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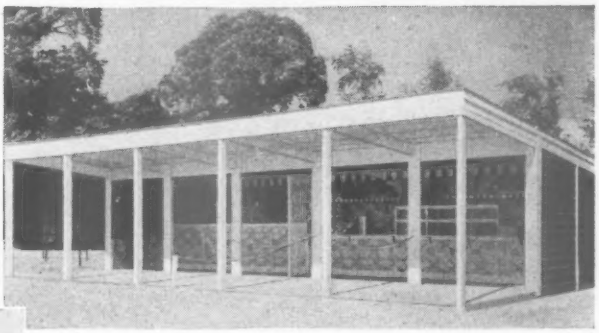
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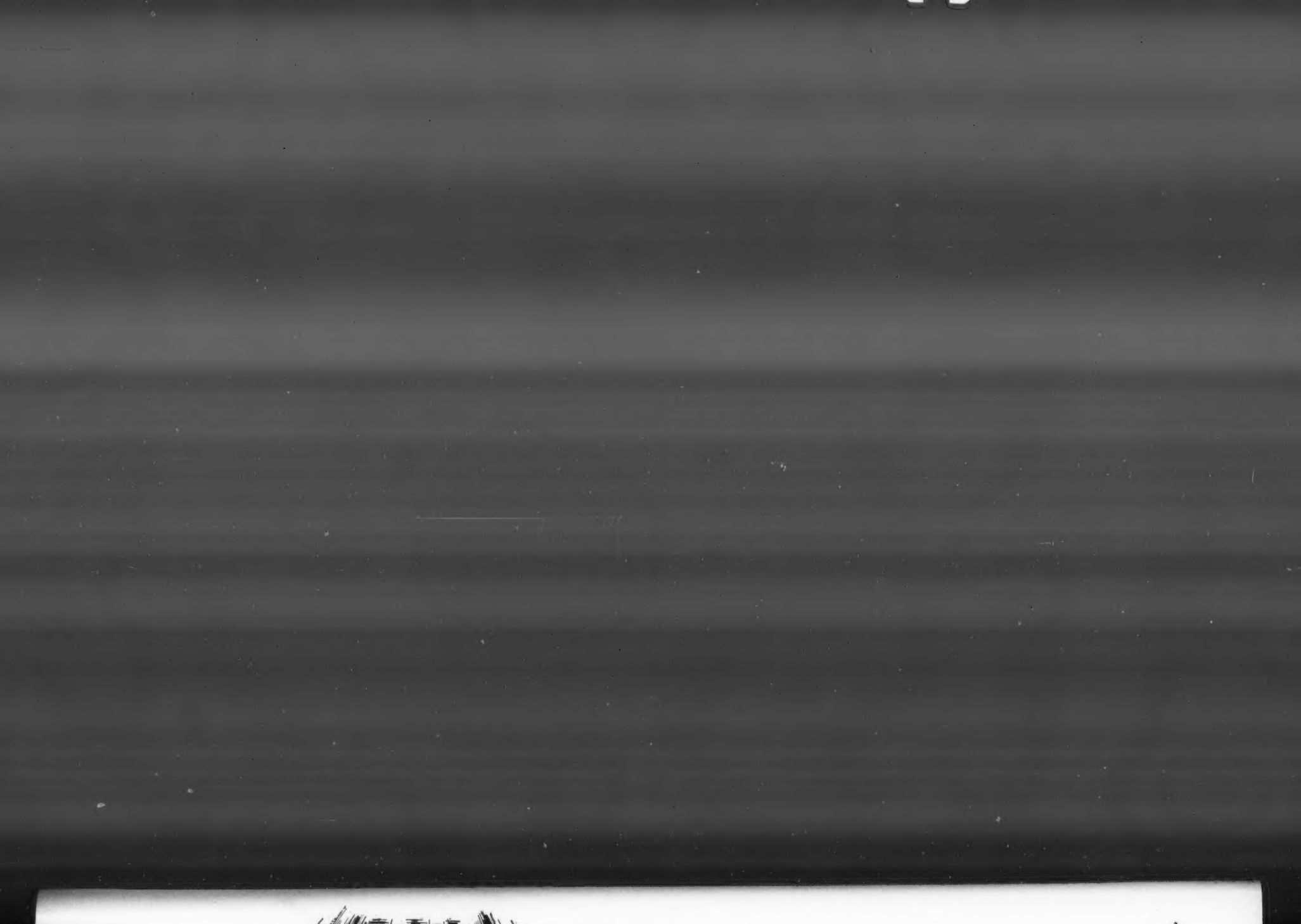
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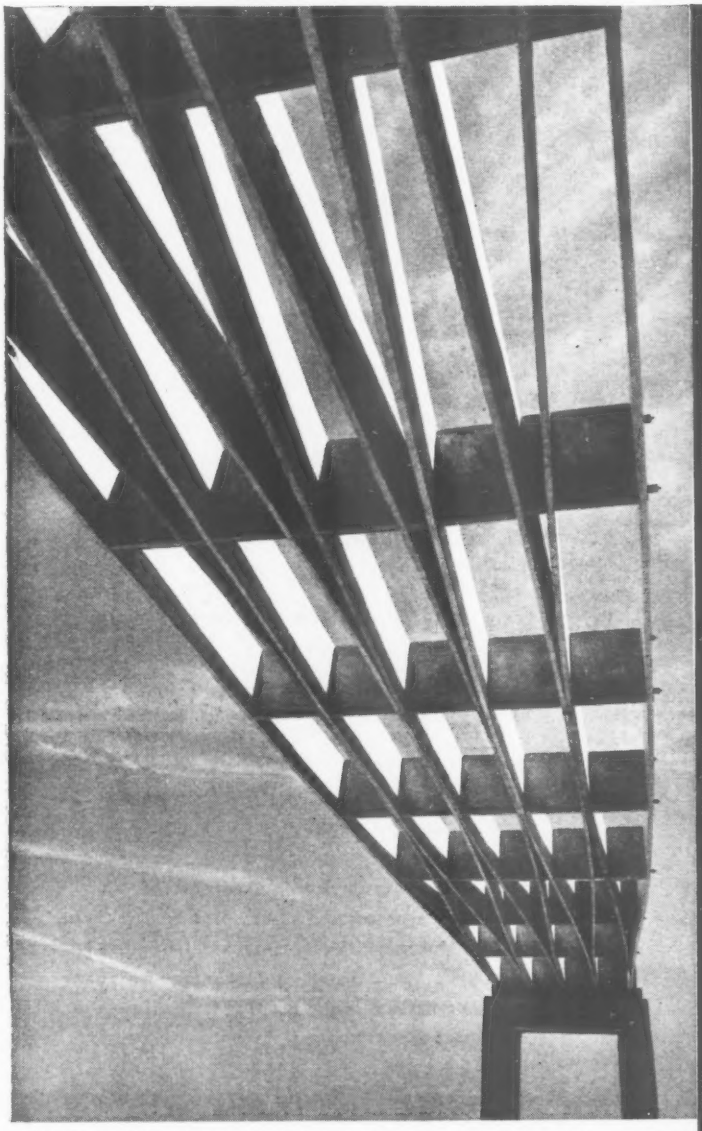
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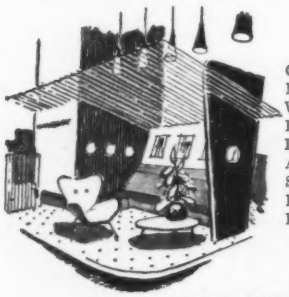
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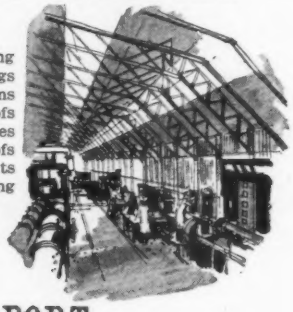


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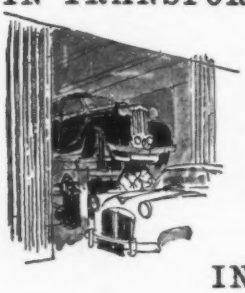
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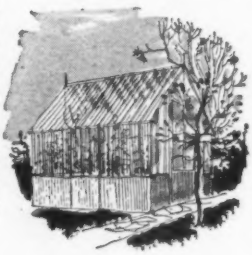
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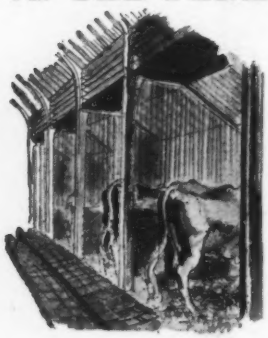
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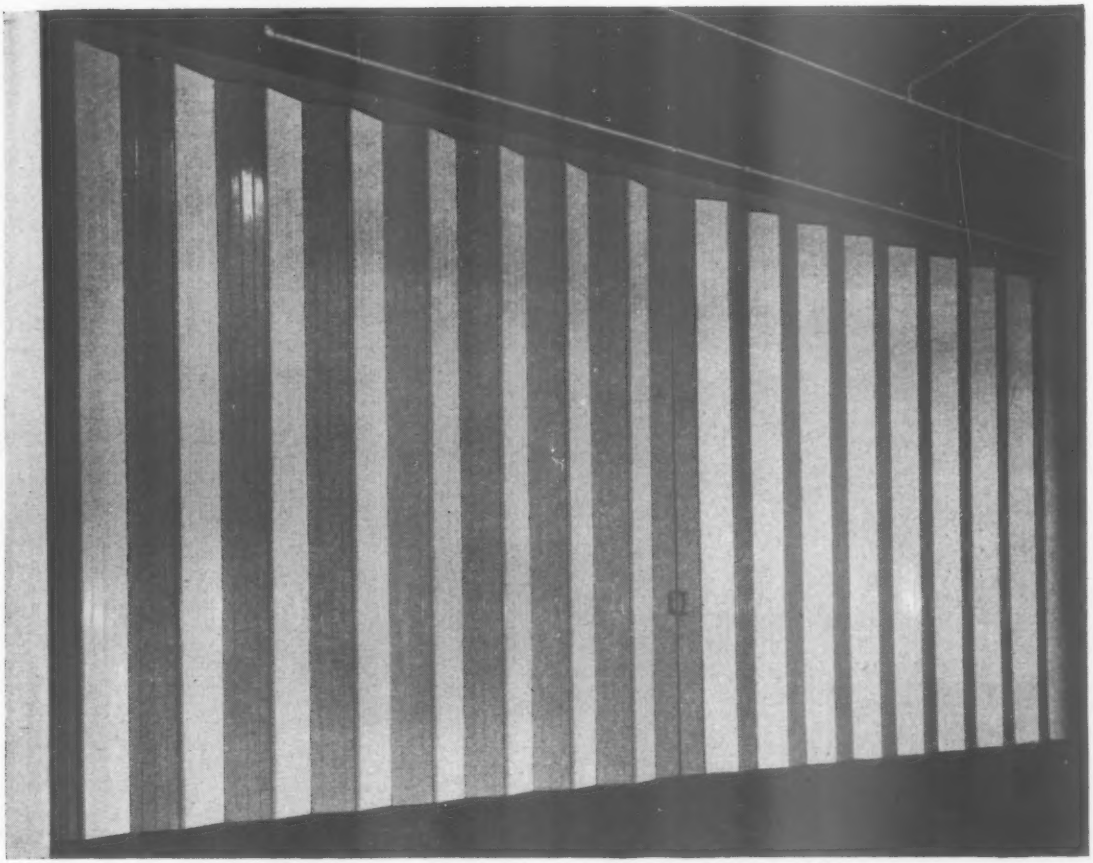
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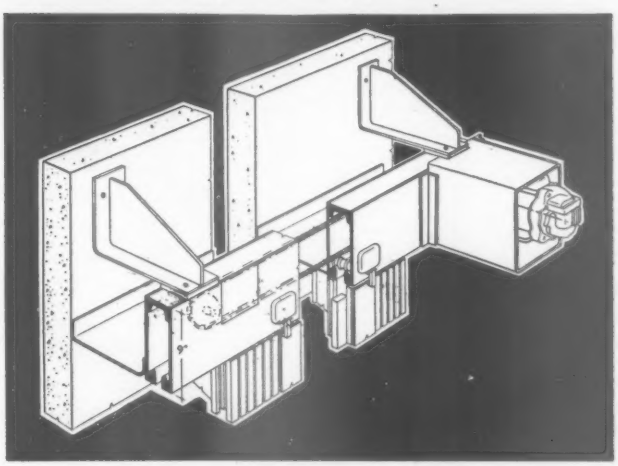
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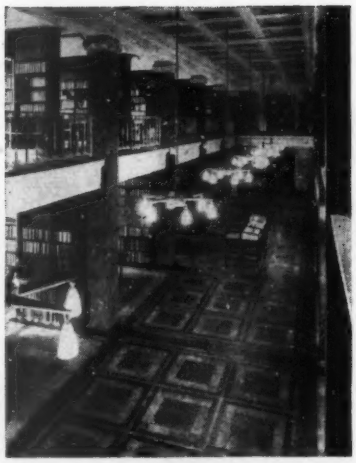
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...chose an Armstrong Cork Tile floor

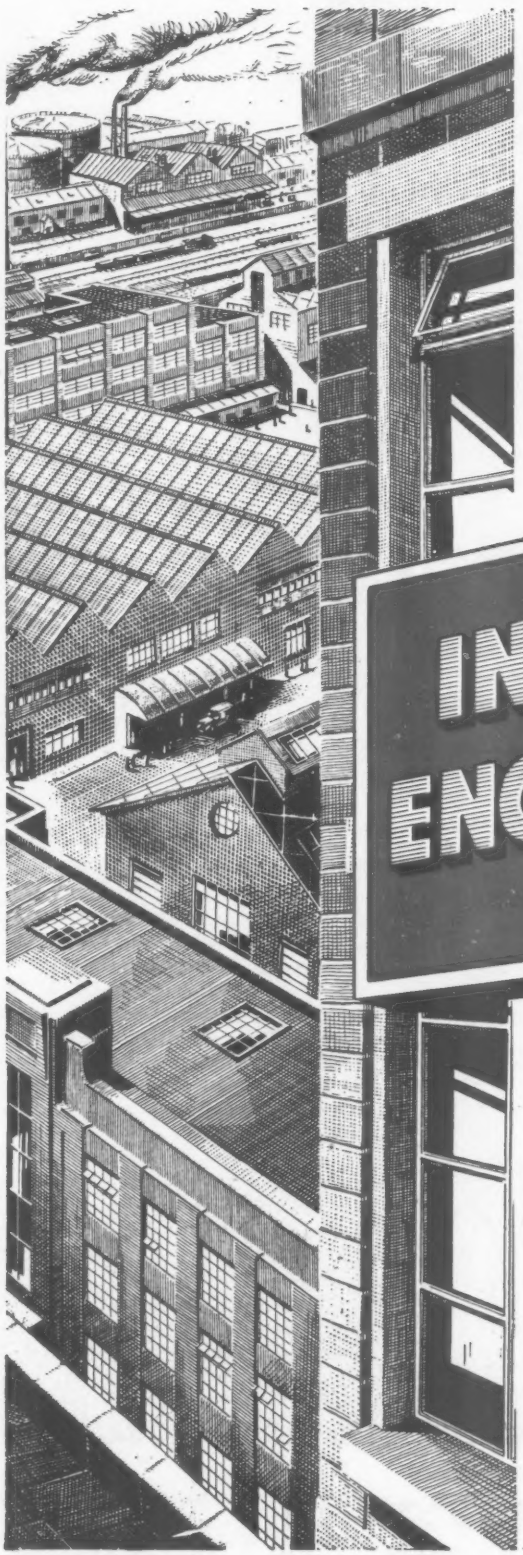
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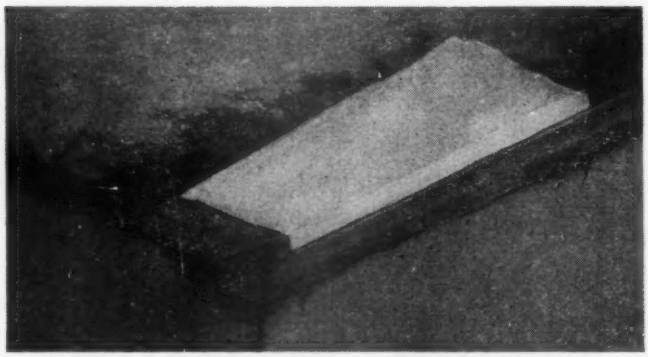
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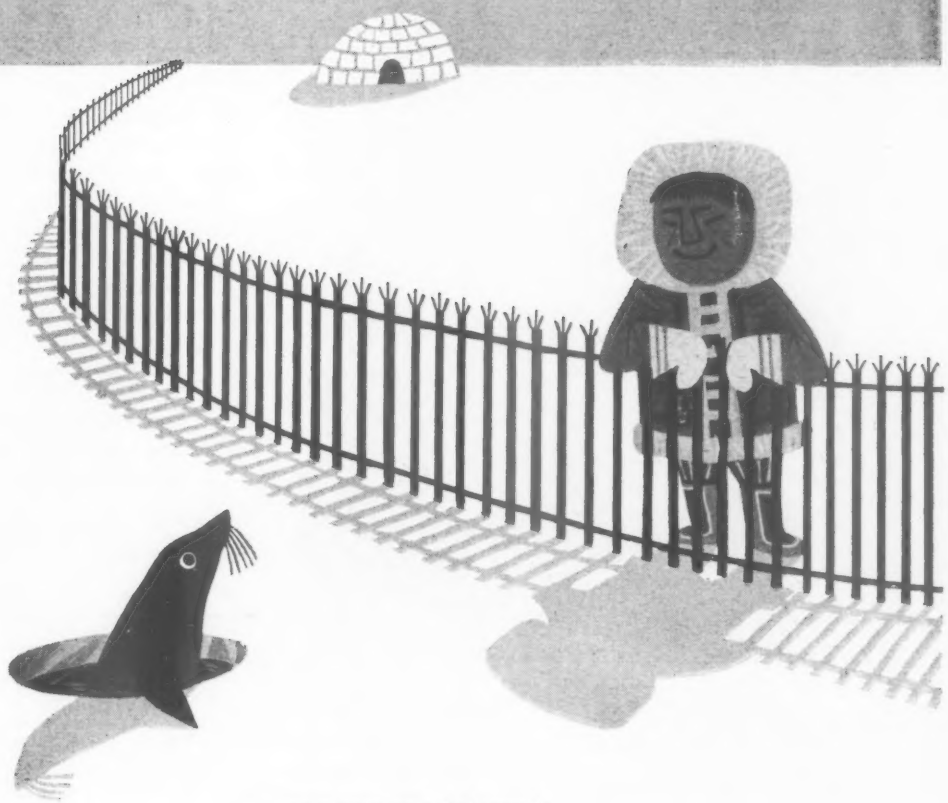
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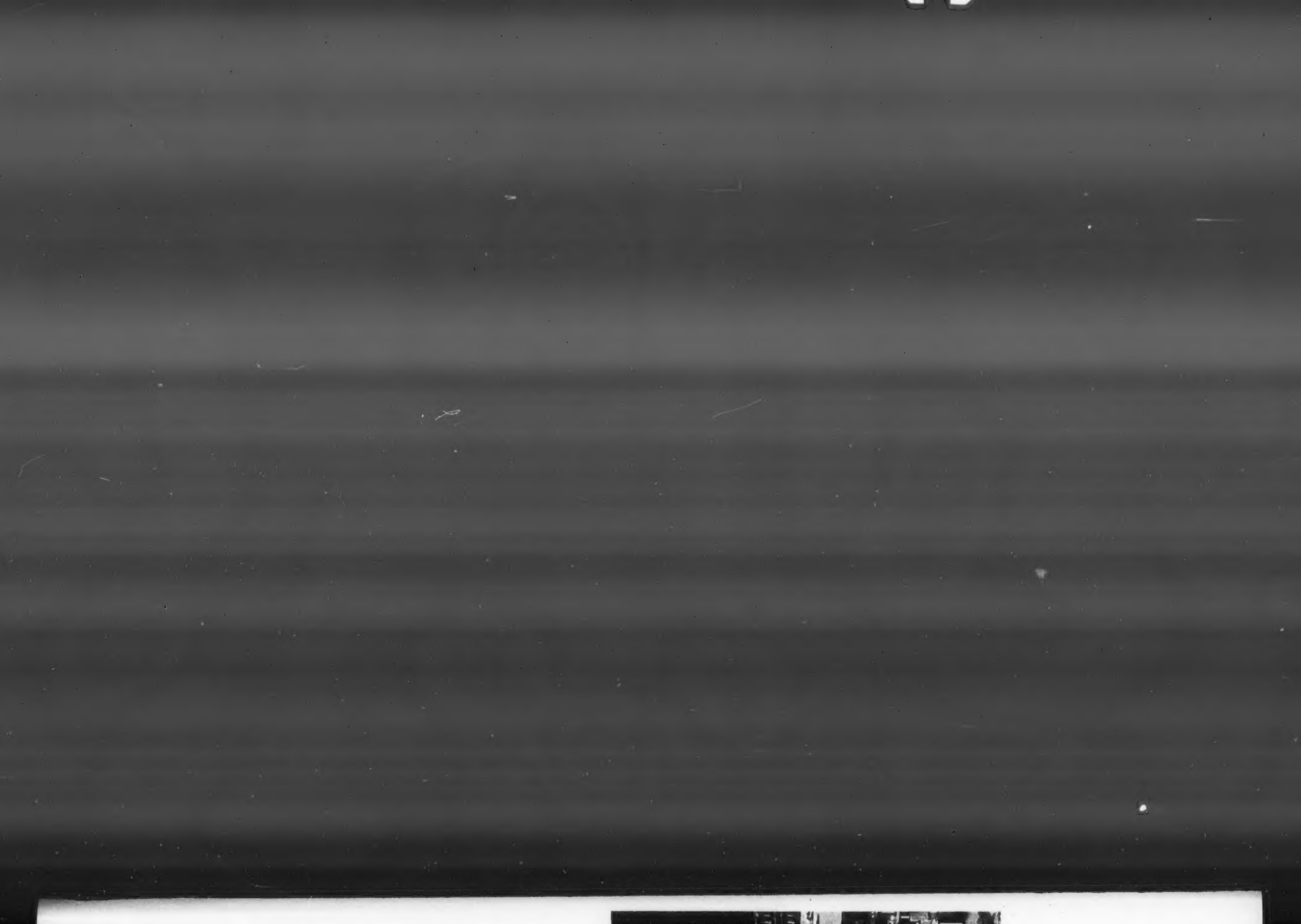


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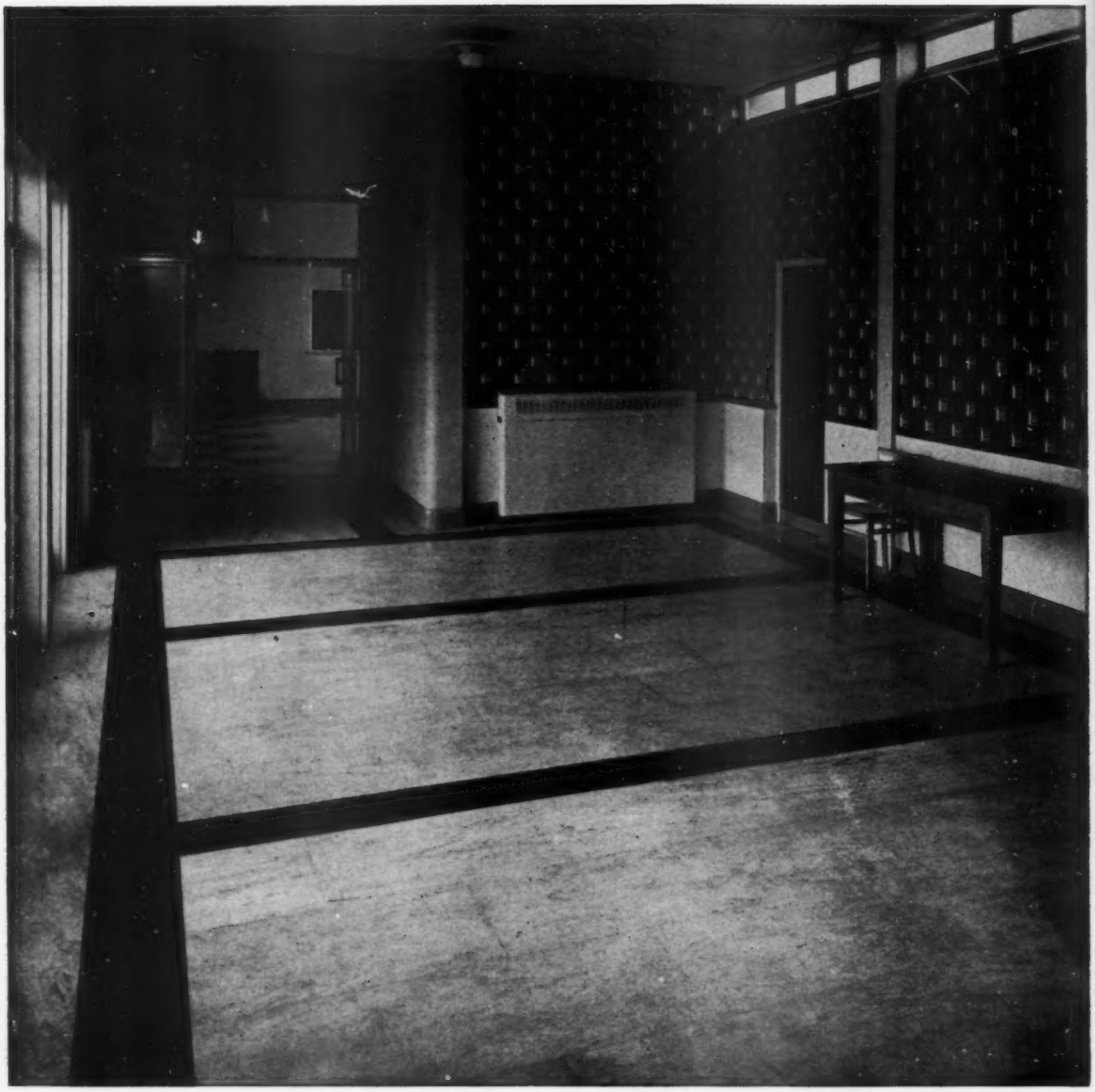
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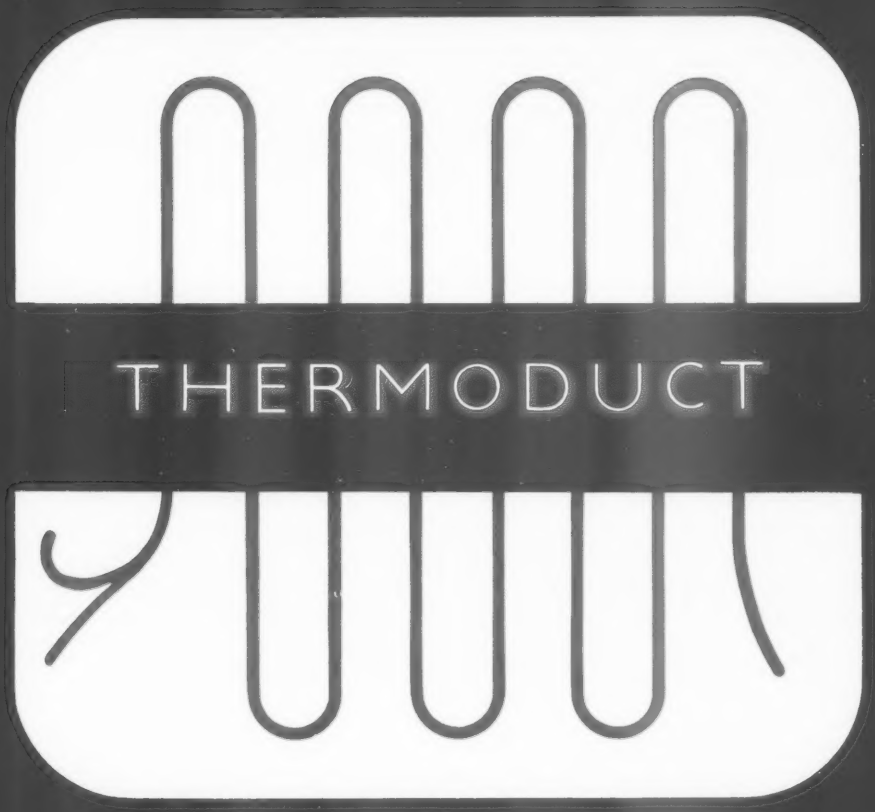
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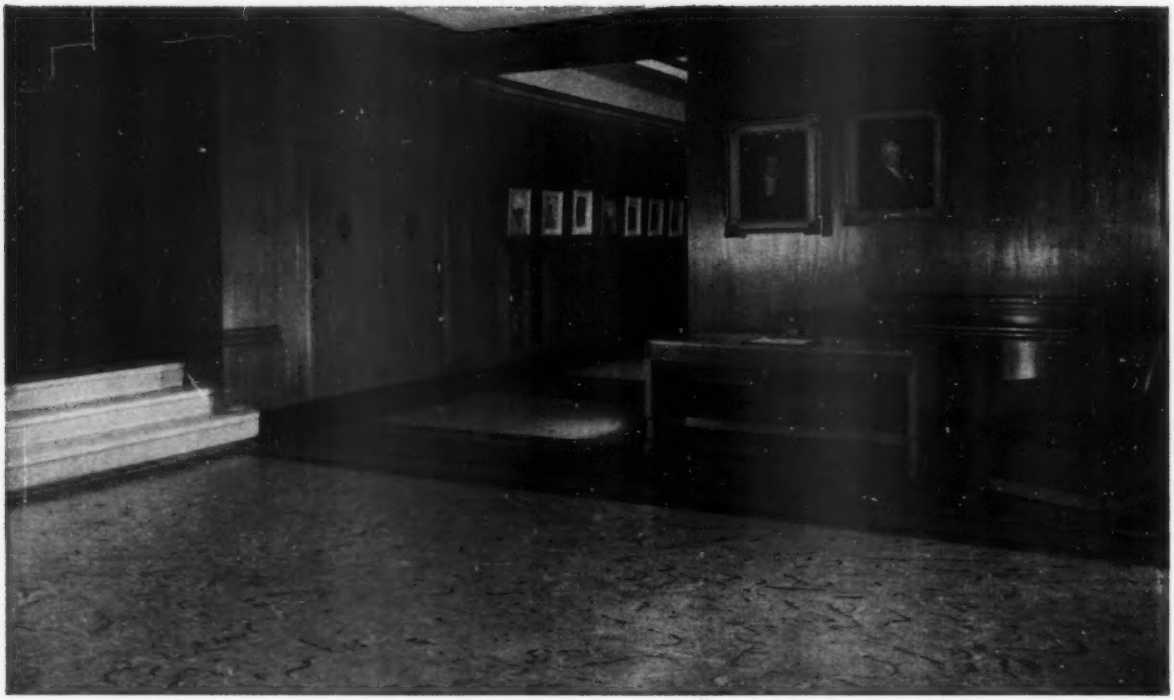
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The Architects' Journal

No 3345. Vol 129. April 9, 1959

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NOT QUITE ARCHITECTURE

NEO-CULINARY



Wedding-cake architecture is a term of opprobrium often applied to earlier American and later Russian skyscrapers, but a recent book, *The Homemaker's Practical Encyclopedia of Modern Cake Decorating,** gives a terrifying literal significance to the words. Dedicated to the "American Homemaker Who Constantly Searches for Better Ways to Serve Her Family and Friends," it devotes its 194 pages to detailed instructions on how to make food uneatable, with elaborate decorations not only for cakes but for salads and sandwiches; a sandwich loaf iced with pale green cream cheese and topped with pink cheese roses vies with a "prepared candy mix" which can be moulded into unappetizing animals which, the authors happily state, "can be a real conversation piece when served in a drink," although the picture provided suggests that the most likely effect would be to cause wholesale and total abstention.

The main purpose of the book is, however, to teach us how to decorate a cake, and anyone who has made a snow scene among the white icing with a fork and then dotted gnomes and Father Christmases on it will be fascinated, although we are warned at the start that it must not be assumed that "you can simply take a tube full of icing and give it a squeeze and the icing will simply flow out the proper end." How right they are—mine usually oozes back through the top when I least expect it. However, with a round tin to practise on and a lot of

* McKinley Wilton & Norman Wilton, Wilton Enterprises, Chicago.

Art Collaboration

For too long artist-architect collaboration has only been achieved on a folksy, mock-Morris level. So called contemporary artists have been too remote, or too expensive to be able to collaborate effectively with architects on other than rare luxury projects. As a result works of art associated with building programmes have often tended to be banal. This is no longer true in the case of the LCC. An exhibition which opened this week at County Hall (until April 25) proves once again that the enterprise of the LCC Architect's Department is not confined to strictly architectural spheres. For over a year the LCC have been employing two young graduates of the Royal College of Art to collaborate with architects in the development of new techniques of decorative treatment on or in flats and other buildings on housing sites. The methods used have had to be speedy and at a cost comparable with the normal facing materials they replace. By reason of cumulative experience, by mutual artist-architect stimulation over materials and methods, by the fact that the artists have found their art much more directly projected into the everyday life of ordinary people, the experiment is a success and is to be continued. The artists are Anthony Hollaway and William Mitchell, who is shown here routing out a pattern on chipboard. This pattern was filled with coloured polyester resin and polished and the resulting decorated panels now line one wall of a clubroom at the Brooklands Park estate, Greenwich. Further illustrations, page 540.



spare time, it becomes easy to produce complicated borders that come straight from a plaster-moulder's design book and which would look charming round a ceiling. When we look at the *draped ribbon border*, the *shell border with fluted edge*, and the *dropped crescent side border*, it is easy to see the affinity with architecture, at least of the Neo-Georgian or Victorian Revivalist schools.

*

The elaboration of the cakes has to be seen to be believed, but unfortunately there is only space to illustrate one. I hesitated for



The Squared Base with Double Ringed Top.

a long time over the Lamb Cake, which is a lamb couchant, completely covered in woolly-textured piping, arranged on a bed of pale green coconut scattered with spring flowers (also made of icing, of course), and the Doll Cake, where a doll, emerging from a domed cake, is iced into a crinoline which out-Hartnells Hartnell. But these cakes could hardly count as architecture and there are several pages of wedding cakes where the architectural detailing of the cornices and the design of the elevations, topped by a sugar arch framing models of the happy pair, would rejoice the heart of anyone weary of Mies van der Rohe's crystal slabs or Candela's hyperbolic paraboloids.

*

The *Lily of the Valley* is an interesting construction, with two circular cakes side by side forming the bottom tier, and *Rose Bouquet* has the "unique and unusual idea" of a trail of roses starting at the base and winding up to the top. The *Good Luck Cake* was a strong candidate, with its "full garland border with fluted edge and lattice work on the base," but the *Squared Base with Double Ringed Top* was an easy winner because of its original combination of square and round forms and because the strong colours of the icing show the detailing so clearly. If any architects feel that they need to study it more closely, perhaps they could ask for a working detail.

MOIRA MATHIESON

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* To preserve freedom of criticism these editors, as readers in their respective fields, remain anonymous.

The Editors

NO LIFE IN THE OLD GHOST

THE statement by the RIBA on motorways makes a convincing case for the closest collaboration between town planners, engineers, architects and landscape architects to conceive and plan motorways as totally organized and balanced designs. It is, indeed, so elementary and obvious a proposition that nobody dares publicly to dissent from it. The Minister of Transport and his Parliamentary Secretary have both proclaimed, on various occasions, their desire for the co-operation of the architects and other professions.

Yet the harsh fact remains that, except in London, architects and landscape architects have no place on the committees set up to study urban motor roads, while the national motorways now being built or designed have been designed without the collaboration of architects and landscape architects from their inception. The Minister should understand that in this matter the RIBA has the support of the entire profession, and (we believe) of enlightened public opinion, which now look to him to translate his words into action.

It would be wrong to assume, however, that even the full acceptance of the RIBA's case for professional collaboration can be anything more than a useful first step. The design of the individual motorway is of the utmost importance: but there are far more fundamental and baffling problems to be solved before we know how best to use the motor vehicle as a tool to serve our rural and urban communities to best advantage. The RIBA "accepts without question the necessity of these great works," and so do we if we are thinking only of the limited programme of motorways that has so far been adopted. But we do not accept without question the idea that any and every motorway, rural or urban, is necessary, or that the motorway in itself can provide any solution to traffic congestion. We agree with Dr. Thomas Sharp that to attempt to solve London congestion by motor roads alone would be worse than useless.

Before we can know how best to use all the means of communication and transport open to us, architects and planners must first clarify their ideas on the structure of the city and the way in which we wish to live. While the Road Research Laboratory is being expanded to find solutions to purely traffic problems, no Ministry or Department is attempting to find solutions to the fundamental architectural-planning problems. What, we would like to know, is what is that feeble ghost

a planning ministry, the Ministry of Housing and Local Government, doing about it? The answer, we suspect, is next to nothing: yet this is the point at which architects can make the biggest contribution of all.



A BASA REVOLUTION

The students had to stage a palace revolution to recover the initiative at the British Architectural Students' Conference on "The Function of the Architect in Society" at Cambridge last weekend. The conference was given a good start by Percy Marshall (who cheerfully said that architects could become as obsolete as barber-surgeons if they failed to respond to tomorrow's needs) and by Bill Pile, Anthony Pott's administrator/partner at the MOE, whose view of the State as a client and of the architect's role was so enlightened that most of the architects thought he was too good to be true (Leonard Manasseh said he was a "happy accident"). But the platform was so overloaded with high-powered architects, clients and developers that there was hardly time on the Saturday for the students to get a word in edgeways on subjects which, in any case, were outside their range of experience. So humble were the students made to feel that the chairman, Jeremy Mackay-Lewis, even suggested that students were not capable of making reports from the discussion groups.

On Sunday morning the students met separately and rebelled, so that when the conference reassembled Mackay-Lewis firmly put the architects in their place, told them that BASA must be represented on the RIBA and announced the exclusion of architects from the discussion groups—a decision which the architects warmly applauded. The result was that the students' reports in the afternoon sparked off the most brisk discussion of the whole weekend.

*

The architects took advantage of their enforced isolation later in the day to protest vehemently against the fact that the conference had been subjected to a barrage from propagandists for three varieties of the all-in service, but had never heard the case against it. This led, unfortunately, to the conference being diverted at the end to an embittered wrangle between the architects, led by Grenfell Baines, and the all-in boys. Who got the better of the wrangle is a matter of opinion: Grenfell Baines scored by calling the all-in service "architectural insemination for the tired client," and N. C. Baker of Taylor-Woodrow retorted that, as far as he knew, artificial insemination produced results.

*

The moral seems to be that BASA should keep the grown-ups more firmly in their place, and not allow a students' conference to become an architects' battleground. But congratulations to BASA on organizing a big conference so well, on choosing a subject which shows a welcome contact with reality, and on having the sense to organize the revolt when they did.

SHOULDERING THE TEE-SQUARE

Among the many professions represented on the Aldermaston march (see page 543) architecture was the only one to produce its own banner. What this proves I don't know, but the boys who marched behind the banner must have felt a little ashamed of their profession as they moved along the Subtopian route. One of them tells me that he spent a little of his marching time meditating in the difference between the Atomic Weapons Research Establishment at Aldermaston and the collection of wretched huts which house the Road Research Laboratory on the Colnbrook by-pass. He felt there was an insane logic subconsciously at work which ensured that more attention was given to research into the destruction of roads and buildings than to research into their planning and design.

IPSWICH CENTRE

A lot of letters in Ipswich newspapers have supported the AJ's criticisms of that town's civic centre competition. One of the correspondents—John Matfield—described the winning scheme as "mediocre," "second rate" and "tawdry" and agreed with many other critics that Birkin Haward's scheme should have won first prize. So far Ipswich Borough Council has ignored all this criticism. It will be interesting to see what reply, if any, it gives to a letter it has received from more than 200 students at the AA, the Bartlett and the Regent Street Poly. The students said that they view the lack of architectural distinction in the winning design with the greatest concern and they urged the Council "to re-open the competition along the lines proposed by the Architect's Journal."

WHERE TO PUT WHAT

The current *Journal* of the Royal Australian Institute of Architects has an article on manufacturers' literature and the problem of dealing with technical information—the subject Dargan Bullivant is writing about in the JOURNAL series which began last week. The author's recommendations are straightforward and sensible, but are based on existing techniques. (He files trade leaflets on the AIA's out-of-date classification system and technical pamphlets on the clumsy UDC system). Bullivant's proposals (there will be another article in two weeks, on the need for a comprehensive information service) are likely to be much simpler, provided everybody—and that means all the research bodies—co-operate.

HARE DOESN'T BURKE

"Arne Jacobsen can think himself lucky he is building for St. Catherine's and not for Balliol." That is what someone remarked after hearing R. M. Hare, a Fellow of Balliol, giving a Third Programme review of J. M.

Richards's book *The Functional Tradition.** The talk was 20 minutes of concentrated Oxford chop-logick—no, 19½ minutes, since he just found time at the beginning to say he liked the book. It was clear all along that he had a perfectly good grasp of the book's argument but preferred instead to "push it around rather roughly," as he himself said. Pushing it around consisted chiefly of lifting words like *functional* and *traditional* out of their context and then discussing all the possible meanings they obviously didn't have in Mr. Richards's mind, before finally coming to a definition of functional architecture that was virtually indistinguishable from that in the book.

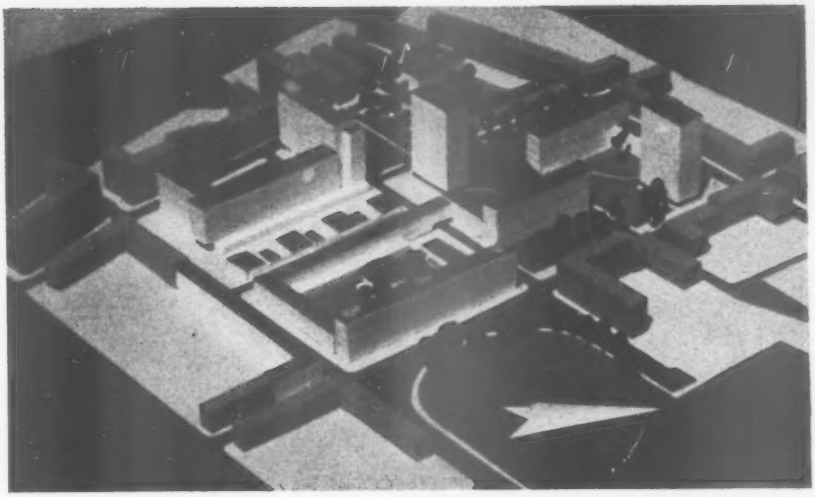
DOWN BETJEMAN'S STREET

The Victorian Society pulled off something of a scoop by asking John Betjeman to talk about G. E. Street at a meeting in Street's masterpiece, the Law Courts. The talk was given in the Courtroom of the Lord Chief Justice where, as Betjeman said, every moulding was drawn out by the master's hand. It was a pity that the meeting was held at 4 p.m.—a time when younger members of the Society found it difficult to attend. One wag, surveying the overwhelmingly grey-headed audience crowding the courtroom, observed that for these people it was not a problem of a Victorian *Revival*—it was the style of their youth. He was off the rails, because, as Betjeman had justly pointed out, Victorian was not a single style that you could recognize by any obvious tricks—you had to be able to distinguish good architecture from bad to know which were the significant Victorian buildings.

*

Presumably Betjeman's testimonial to the architectural probity of Street (it could hardly have been called a lecture about him) was intended to exemplify the kind of Victorian virtues that he had in mind. It was a highly Betjemanian performance, including such feats as quoting a letter of Norman Shaw's from memory, but it needed, I thought, more support in the way of visual material. It might, for instance, have been delivered as the commentary to a conducted tour of the Law Courts in general, with comments affixed to particular pieces of planning or detailing. This might have taken longer than the lecture did, but this would have been a good thing if it had left no time for Lord Esher's unchairmanly and unwarranted anti-Modern and anti-Planner jibes.

* Architectural Press, 36s.



Ronald Ward & Partners' comprehensive development scheme on the former Foundling Estate, Bloomsbury. Brunswick Square is in the foreground.

THE HIGHER THE LOWER

Much of Georgian London has been redeveloped piecemeal and it is good to hear of a private developer having a stab at comprehensive redevelopment in Bloomsbury. Ronald Ward & Partners have produced a scheme (see above) for the E. Alec Colman Group of Companies. The site, which lies between Russell Square and Brunswick Square, was formerly part of the Foundling Estate. The streets running north and south will be closed to through traffic, and the 60 shops will have only pedestrian access. Flats will be provided at reasonable rentals, and there will be only one office building.

*

This sounds excellent. But it is a pity that existing buildings to the south of Brunswick Square will be dwarfed by the eight-storey slab to be erected on its west side. Wouldn't it be better to make the two 17-storey tower blocks higher still, so that the other buildings could be kept down to the Georgian scale? There is no point in having tall blocks if there are also several slab blocks ranging from eight to 11 storeys in height.

THE NEW PROFESSORS

Professors of Architecture are the very latest thing. After Frederick Fielden's appointment to a chair at the Royal College of Science and Technology, Glasgow, comes Jack Napper's appointment as a second professor at the Newcastle School. The official announcement says that he will direct postgraduate research. What will this impressive-sounding task turn out to be, and how many postgraduates will help Mr. Napper put our troubled world straight?

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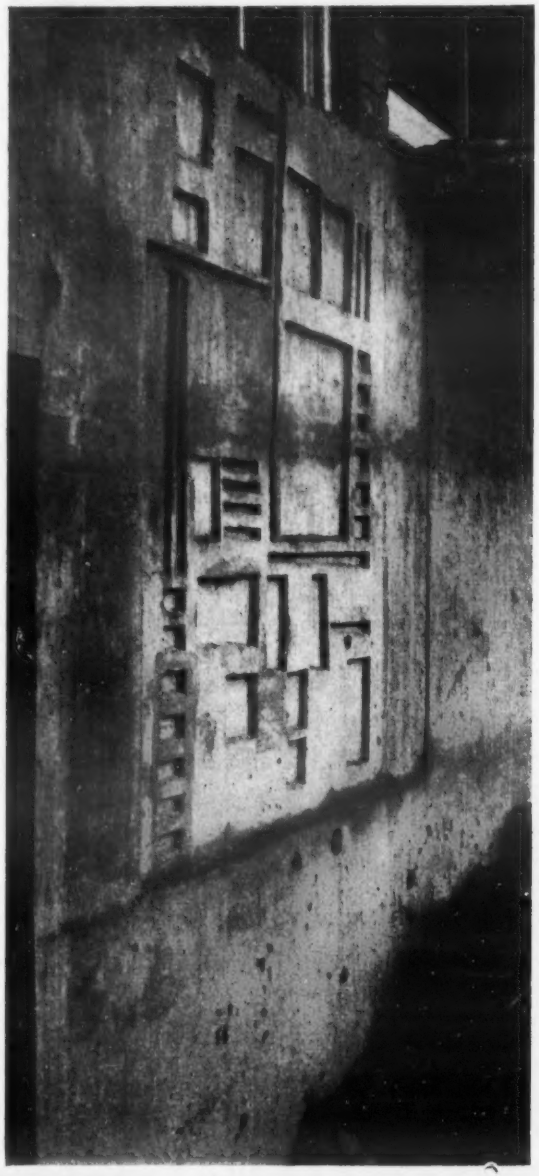
Cecil Stewart, who runs the non-U school at Manchester, has started a new architectural course: one year's whole-time training, three years in offices (with one day a week at college), a fifth year's full-time training, and a further two years in offices. We can do with a lot of experimenting type while architectural education is in need of radical overhaul. Let us hope that progress is recorded, so that educationists can have some concrete evidence—not just enthusiasm—about the success of the course. There is one cause for doubt about the whole venture. Are the architects' offices in Manchester fit to carry such responsibility? Not if we judge from some of the local buildings. But perhaps Cecil Stewart is confident that his students can reform local architects.

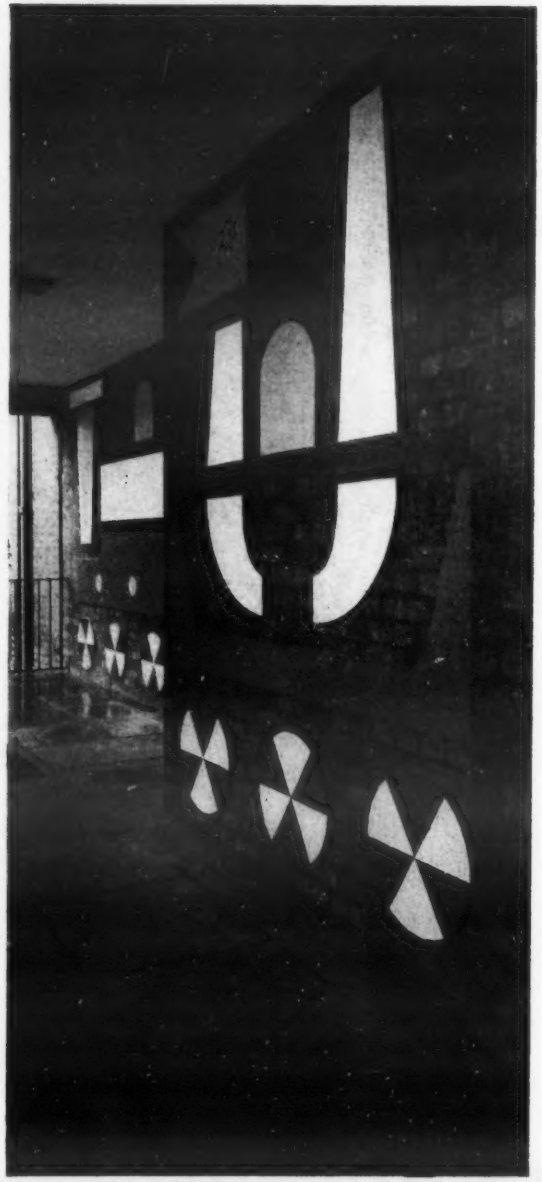
NEW EAMES FILMS

Readers may be interested to know that Charles Eames intends to show some new films at the film evening to take place at the RIBA on Tuesday next, the night before his discourse. What the films are even the RIBA does not know.

ASTRAGAL

ARTISTS AS CONSULTANT DESIGNERS TO THE LCC





Three of the techniques used by artists Anthony Hollaway and William Mitchell in their decorative work done in collaboration with the LCC's housing architects are shown here: extreme left, an example of three dimensional patterning in poured concrete, obtained by applying wooden forms to the shuttering, used on the ground floor walls of two eleven-storey flat blocks at Derby Hill estate, Lewisham. Left, painted cement shapes made by masking



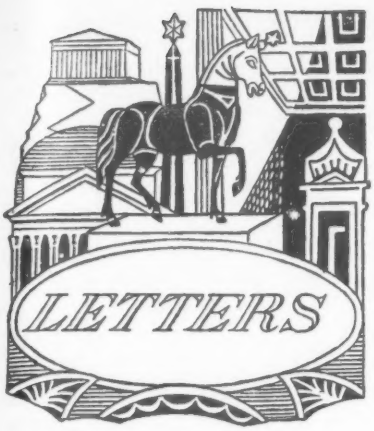
brickwork with wood forms—at a play space, Renbold Place site, Greenwich. Above, a mosaic made from broken and cut tiles for the lift halls of flats at Squirries Street, Bethnal Green. A large number of other techniques are used, including: using vinyl plastic as a cheap mould; stencils and coloured cement sprays; photo-stat-enlarged murals, plastic sprayed; ceramic glaze on concrete using oxy-acetylene gas; patterns of natural woods of varied sections bedded in resin and polished; and polyester resin inlaid in plaster. See also this week's frontispiece.

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John Outram, Student R.I.B.A.

Guy Oddie, A.R.I.B.A.

C. M. Hulls, Student R.I.B.A.

Peter Cowan, A.R.I.B.A.

Michael Haskoll, Student R.I.B.A.

E. W. T. Baker

C. B. P.

W. S. Gauldie,
A. F. S. Wright, F./A.R.I.B.A.

Basil Ward, F.R.I.B.A.

BASA Supplement: A Reply

SIR: The motives of the intellectual Luddites you printed last week probably stem from the literary Philistinism common to many architects: *e.g.* Lutyens: "What's all this talk?"

Is it possible that this dislike of words (*i.e. thinking*) contributes to their latent authoritarianism and declining social status? It is difficult to think in pictures—as the Egyptians found.

The correspondent who finds the problems of the architect as designer so basically simple is perhaps a little basically simple himself. Basic things *are* simple. Words are not "basic" in the way that a brick is. Their material reality is their least important aspect (which is why architects hate them so). They are only inexact symbols for thoughts and emotions. The same word triggers off different thoughts in different people. If the trigger clicks ineffectually in some correspondents I can only conclude that they have empty magazines.

The other more serious criticism, "that I failed to draw clear conclusions," I accept. Someone considering "sweeping and comprehensive problems" who comes up with a clear (or simple) solution, is liable to be taken as a Messiah. Students, most of all, should avoid this fate, as the confidence of their enthusiasms is usually a function of their ignorance.

Is there any student or architect, who knows enough about cities to even think about them clearly—let alone solve their problems? This is why I asked for a New kind of Designer: to solve the problems of urbanism.

JOHN OUTRAM

London

The Editors write: the editors of the BASA student supplement say: "We would welcome replies that discussed what the articles were about rather than the way they were written. This is a journal for architects not etymologists."

SIR: Any fool can see what Mr. Outram means if he applies his mind to it. Thus, for instance:

Autonomous feed-back systems: ways of making yourself sick.

Topology: studying the summit with your head in the clouds.

Intuitive geometry: knowing all the answers without having any proof.

Any fool. But any fool can also make fun of stock-exchange terms, or philosophers' language, or the jargon of sailors, golfers, or motorists. And Mr. Outram's jargon is no different. Like the rest it is a perfectly satisfactory means of communication within an esoteric (see O.E.D.) group; but to those outside the group it is only intelligible after patient study. When the group in question is discovering the world and what it means to them with a vision undisturbed by the mists which gather round the experience of middle age, all the more patience is needed, but it is all the more rewarding. At 37 and having been middle-aged now for about 10 years, I am grateful for the opportunity to share, however imperfectly, a broader and a fresher view than my own.

All the same, I might get out of the groove more easily, become more of a cat and less of a square I mean, if some vulgar popularizer could provide me with a more authoritative glossary than the one which heads this letter.

GUY ODDIE

London

SIR: Having read through your BASA section twice, I am still wondering what it is all supposed to be about. Whatever meaning it may have had is lost under a badly composed mass of pseudo-technical jargon.

I suggest that the first lesson to be learned from the technologist and scientist is clear thinking and clear expression of ideas. If invented or very abstruse terms and words must be used, their meaning should be defined. What is "atomistic-determinstic philosophy" or "socio-plastic validity"?

Secondly architecture must not run ahead of technology and the existing pattern of living. There are, after all, still people who want (and will pay for) a three bedroom semi-, or an office block; and it is the architect's duty to meet these needs without designing a complete new super-city for an ideal (?) society. In other words it is no good bringing your sprayed-on wire-frame plastic Stradivarius to the party, if no one will ask you to play.

No doubt these people have good ideas, and are rightly exploring the immediate future of architecture. Please let us have their theories sensibly explained. Otherwise one is forced to think these students have been "raised and inverted" until they have come to "a steady state of interactivity and polarized balance."

C. M. HULLS

Warminster.

SIR: In connection with the article, by the two students, on "architectural rethink." Their explanatory footnote on chromosomes is wrong—chromosomes are *not* parts of genes; in fact, the genes are contained in banded segments running crossways along the length of the chromosome.

PETER COWAN

London.

Down with Corb!

SIR: I see from the correspondence columns in the AJ, March 26, that the preservationists are at it again. The Villa Savoye became derelict because no one wanted it, and if this remains the case why try and preserve it? The disease of preservation has done enough damage in this country, for goodness sake don't export it to the French; since it originates from a lack of self-confidence it saps initiative.

MICHAEL HASKOLL

London

A Disposal Problem

SIR: This technical sales representative is saddened at being considered "a problem" by two correspondents (AJ, March 26).

One's experience (every three weeks for the past five years) of leaving home at 6.0 a.m. for Cardiff or 5.30 a.m. for Swansea (to visit industrial undertakings), happily indicates small chance of a road accident with either an architect or a consulting engineer *en route*.

E. W. T. BAKER

Birmingham

SIR: Regarding recent correspondence on the problem architects face with technical representatives, why are we so often considered as just another "disposal problem."

The "Cost Analysis" by "Practising Architect" was interesting and I hope some enterprising sales director will produce a similar analysis for the cost of a technieal representative's services.

I hope, also, that "Consulting Engineers" will adopt their suggestion of only seeing representatives before 10 a.m. I can imagine the chaos in the waiting room (with tea not the incentive!).

Seriously though, we really do appreciate that you have a problem, particularly of numbers, but I would also hope that you regard the present-day standard of representation and conduct as high. It would be interesting, however, to have an architect's version of "Representative's Code of Conduct" and an exchange of views might help to make life easier for both parties.

Worcester C.B.P.

Those Timber Symbols

SIR: We are obliged to Miss Imrie of the TDA for exposing—although inadvertently—a misprint which escaped us and apparently everyone else. Most of the "misinformation" of which she complains (AJ March 19) is in fact due to the "corrected" symbols

in plaster. See also this week's frontispiece.

given in the issue of January 22 having been scrambled yet again somewhere in the process of publication. Let us make it clear (for the last time, we hope) that the symbols we use are these:



yes maybe no

This accounts for most of the discrepancies between the TDA's table and ours. But we should like to join issue with the TDA about the others.

In the first place our term "local availability" does not refer only to Scotland: it refers only to Dundee. We really mean *local*, in the sense of being normally available for inspection in timber yards on our doorstep.

Bear in mind that the purpose of a table like this is only to convey to relatively inexperienced assistants the gist of certain opinions formed the hard way by the partners. Some of these opinions seem to differ from Miss Imrie's.

We have faulted a timber under "consistency of colour" when we have found it necessary to make the joiner select in order to avoid variations in the plank or between planks. This *has* been our experience in the case of Borneo cedar, obeche and teak. "Priming difficulties" include the need for care in filling, sealing, etc. We have found sapeli good in this respect and meranti only fair—the reverse of Miss Imrie's notation. We consider teak not quite up to "fair" for "ease of working" (an opinion which we find corroborated by working joiners), and indeed it is rated no more than "medium" by the TDA's own chief architect in a table published by *Architecture & Building* in May, 1957.

Incidentally, the same table agrees substantially with our own findings on the "priming" characteristics of meranti and sapeli, which are the reverse of those given in Miss Imrie's table.

It is precisely in fields where published information is not always unanimous that it becomes important to record one's own experience and to have a handy way of passing it on: hence our use of these home-made comparison charts.

After all this it might be as well to point out that the article was about office practice —not about timber, on which we had no intention of "guiding" the profession, wrongly or otherwise.

W. S. GAULDIE
A. F. S. WRIGHT

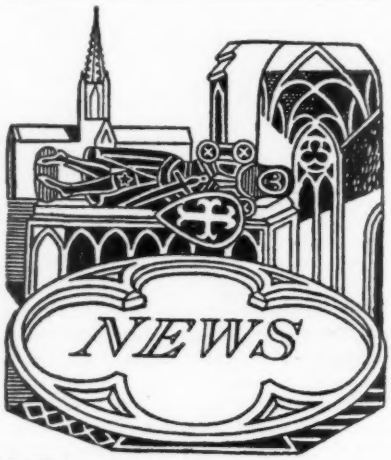
Dundee

The Keble Triangle

SIR: ASTRAGAL (AJ, March 19) expresses the hope that the overall plan for the Keble Road triangle might be reconsidered. Implicit in his comment is the criticism that the triangle is over-packed. One wonders if this criticism is qualitative as well as quantitative. In fact, the whole scheme had, of course, very close and most anxious consideration. On the one hand, the floor space index arrived at in the plan was agreed as reasonable and produced no adverse comment from the Planning Authority; on the other, the University gave the fullest opportunity for general criticism by exhibiting the scheme in public for several months, by putting it before its committees, and finally, by putting it before Congregation, where it was debated, voted upon, and received a marked majority.

BASIL WARD

London



RIBA

Statement on Motorways

The following statement has been issued by the Council of the RIBA:

During recent years the rate of development in town and country has accelerated to such an extent that there is now increasing danger of irreparable damage being done to the environment in which we live. The RIBA welcomes the increased standard of living throughout the country, and acknowledges that physical developments reflecting this higher standard, and reflecting also technological advances, must inevitably follow. The Royal Institute feels, however, that a proper balance should be retained in all such matters, and that undue sacrifice must not be made solely on account of expediency in carrying out new works. One of the most insistent anxieties today arises out of the programme for the motorways, and out of their possible effect upon civic and landscape design.

The Royal Institute accepts without question the necessity of these great works. Its concern lies in the fact that so little recognition has been given to them as projects which will for all time materially alter the look of our towns and our country-side, for good or ill. It has already been shown abroad that a great road can actually add to the character and the quality of the scenery; but on the other hand, certain examples which can be seen in Britain show equally how disastrous and depressing some such roads can be.

Members of the Royal Institute have visited and studied examples of successful road design in Germany and America, the only two countries which have long experience in this modern problem. They are convinced that where such roads are successful it is because, from the beginning, there has been close collaboration between the professions concerned. Such collaboration at the inception ensures that the works are considered simultaneously in all their aspects—planning, engineering, amenity and cost. They are conceived and planned as a totally organized and balanced design.

The Royal Institute appreciates the splendid engineering feats that make possible the new motorways in Britain and does not wish to detract from these in any way, nor to impede their progress. It must, however, place on record its concern that the absence of the town and country planning, architectural and landscape professions from the conference table from the time of inception may cause the roads to be more harsh and less satisfying than need be, in both town and country. It is well to remember that Britain has the most humanized landscape in the world; its harmony and power lies in its domesticity and small scale; and it is above all a friendly, agreeable landscape in which the various elements mix and intermingle smoothly and easily. We must see to it that the new element, the motorway, not only takes its proper place among the other contributing elements in town and countryside, but adds significantly to this expression of twentieth-century development.

VILLA SAVOYE

A Report from Paris

Our report in last week's issue that Le Corbusier's Villa Savoye is no longer threatened with early demolition is now confirmed in a fuller message from our Paris correspondent. The villa is now the property of the Commune of Poissy, having been expropriated by the Government on March 17. The land was designated for a lycee, which is urgently required for the large number of flats built at Poissy in recent years. Nobody has lived in the villa since the German occupation forces took it over from the Savoye family during the war. A farmer keeps an old motor truck there, and boxes of apples in the reception room and hallway, broken windows are filled with straw, and the house is, in short, used as a warehouse. Somebody is, however, living in the lodge, which was badly restored some time ago.

Apparently the world-wide outcry was required to make the French government departments appreciate the value of the building, which had not been understood by them before. While floods of telegrams have been pouring into the Ministry for Cultural Affairs from abroad, there has been little public reaction in France itself, apart from a letter to the Ministry from a dozen prominent architects and others including Vladimir Bodiansky Aujame, Kopp, Flom L'Agneau and Charlotte Perriand, who have formed an independent committee. The Ministry of Education has also stated, unofficially, that the villa will not be pulled down, but this does not mean that a satisfactory future for the villa is assured. Continued support from abroad is still necessary to ensure that it is not lost by incorporation in a "*groupe scolaire.*"

The architect of the proposed school is Jacques Chauliot, who has not yet even determined the siting of the school. He is to

meet M. Wogensky, Le Corbusier's assistant, to discuss how best to treat this problem. M. Wogensky and a lawyer, Maitre Tinland, and one or two other interested people wish to take over the building from the government and to use it as a museum for the exhibition of Le Corbusier's work, possibly with rooms set aside for architectural conferences. If, as they hope, the villa were to be handed over as a gift from the state an international appeal for anything up to 15 million francs (about £12,000) would have to be made for its restoration.

Those who wish to send messages of protest or support can do so to M. Wogensky and Maitre Tinland, 1 Ave. President Wilson, Paris, 16. The official primarily concerned with the project for the new school is M. Donzelot, *Directeur des Constructions Scolaires, The Ministry of Education.*



The architects' contingent in the Aldermaston march: *see* ASTRAGAL'S *comments page* 538.

AA

Tropical Architecture

Michael Brawne writes:

If there is such a thing as regional architecture, it is not a conscious creation fixed by national boundaries, but the inevitable effect of building in one of the three great divisions of the world: the over-developed, the developed and the under-developed territories, to use C. Wright Mills's classification. These economic and technical differences are far more influential in determining the building form than a possible need for sun control.

It is, however, the building forms of the over-developed and developed countries which are the architectural pace setters today. As A. J. S. White, Controller of the Middle East, Latin America and Far East Division of the British Council (opening the exhibition of students' work at the AA School of Architecture's Department of Tropical Architecture), put it, the corrugated iron roof is a sign of wealth in Burma and used as such ostentatiously, despite the fact that thatch is likely to be cooler. Tropical architecture for the under-developed territories is thus as much a social and emotional challenge as a technical problem of environmental control in terms of sun, wind and rain. The answer is more complex than the addition of louvres to a standard European structure. It involves even more than here an assessment of needs and a decision on the allocation of resources so that from a rigorous examination of these a tropical æsthetic may merge. Just as in this country Brutalism is as much an economic and social answer as an æsthetic revolt against the architecture of the over-developed territories, so in a similar sense, there is a need for a revolt to create an architecture of the under-developed countries. As yet there are no signs of such a movement emerging from the school.

The tropical course at the AA was first started with the intention of introducing post-graduate students from this country to the problems of building in Africa and Asia. It is now, however, mainly attended by architects from abroad under the auspices of the Colombo Plan or the UN. Unfortunately it is precisely these architects who seem to start with the strongest preconceptions and are most anxious to emulate European forms. It is a common complaint by Africans working in offices in London that the details devised especially for tropical buildings are in fact not wanted there, that they are "too bush." And one wonders whether Adeolu, Tarbolton and Yang's interesting University Staff House at Khartoum, for example, accepts the tradition of the architecture of the desert fringe not so much because it is a valid solution but because it also happens to coincide with current Western strivings for sculptural expression.

It is important therefore that a sufficient number of students from this country should attend the course for, paradoxically enough, they are often more anxious to eliminate accepted forms. Western architecture does not have for them the emotional overtones of technological prestige. Such a combined group of architects from Asia, Africa and Europe, learning from each other the total range of problems, could, under the guise of Otto Koenigsberger's ubiquitous knowledge of the Tropical belt, produce the beginnings of a valid regional architecture. One hopes for signs of this at next year's exhibition.

MOW

"Value for Money"

The chairmen of the RIBA Cost Research Committee and of the RICS Cost Research Panel were principal speakers at a meeting organized by the MOW and the Brixton School of Building at the Building Centre. Sir Thomas Bennett presided and the third speaker was G. W. Pollard of the Ministry of Works, who although an architect, spoke, he said, as a client—the country's largest client.

The title of the discussion was "Value for Money in Building," Mr. Pollard's contribution to which was a call for those concerned to "know their responsibilities." The client should be aware of his responsibilities to the public and should be clear as to his needs and budget. The architect should keep his promises, be prudent as to balance of capital and maintenance costs and be timely with his drawings. The quantity surveyor should be appointed at an "early stage" and the builder selected should be an efficient one.

The audience, consisting mainly of builders and quantity surveyors, appeared to have no objections to these propositions, so Sir Thomas Bennett passed us on to R. B. Hellard, who spoke as chairman of the RIBA Cost Research Committee. He said that they sought a means of achieving ". . . a balanced standard of defined quality . . ." in building work. The search had begun when the committee reviewed existing methods of cost control. It found no single method to be the "full answer" but uncovered an increasing interest at "both ends and in the middle" of the profession. The committee's programme was to encourage this interest; to consider how cost control might be introduced into architectural education and to look at factors affecting building costs which were outside the architect's direct control, for example, town planning consent delays.

After a passing reference to certain prac-

tices of public authorities which increase costs, Mr. Hellard suggested that although the "all-in" service had come into being because it could offer better guarantees on time and cost, the private architect really had the advantage because his design was tailor-made to the client's needs whereas the all-in service generally had to adapt its own system of construction needed—to give a more consolidated service to the client and to exploit the builders' skill and resources to the full. But, he said, this meant two things. First there must be simplification and standardization in professional offices, including better organized technical information. Secondly, architects must study the techniques and organization of building works—it should be a "future major study." In considering the implications of the proposal on professional fees, Mr. Hellard said we must beware of the "high cost of low overheads"—meaning that too little money spent at the drawing board and office stage may mean too much spent in the construction stage.

Cyril Sweett, chairman of the RICS Cost Research Panel, began by saying that the quantity surveyor's greatest contribution to value for money in building was in "his traditional role as cost advisor to the industry." The q.s., he said must have a flexible mind. Only those interested in cost planning should do the approximate estimating on which the client's decision whether to proceed or not was based. After a deprecatory reference to fee cutting he put forward the possibility of builders being called in as advisors during the design stage, at the same time asserting that competition among builders was a vitally necessary incentive to efficiency. The "Packaged deal" all-in service would eventually lead to increased costs because it eliminated competition. He asked whether the builder could give advice, whether competition could be preserved.

Mr. Sweett then turned to the "two systems": *cost control* (the method invented by the MOE and usually called "cost planning") and *cost planning* (the method described in the *RICS Journal* of May, 1958). He said that architects and quantity surveyors should not be badgered into the adoption of any one method.

In the discussion which followed there were only two live spots. The first when Peter Trench, director-elect of the NFBTE, suggested that builders could advise on design for a fee—the job being subsequently put out to tender; the second when a representative of the NFBTO, stung by the chairman's reference to excessive tea breaks, made an impassioned plea for the abandonment of architects, quantity surveyors and competitive tendering.

J. C.

RC

Structural Lightweight Concrete

The Reinforced Concrete Association discussed at its meeting on March 18 the use of lightweight concrete for reinforced construction. A paper was presented by A. Short of the Building Research Station, which was in effect a progress report on the work being done there on concrete made from lightweight aggregates and on the proposed future research. The aggregates under consideration are foamed slag, sintered clay and sintered pulverized fuel ash. They are all, or can be, produced in quantities sufficient to satisfy the needs of the industry and considerable use has been made abroad of both foamed slag and sintered clay. Densities to provide concrete of crushing strength 3,000-4,000 are of the order of 115-120 lb. per cubic foot compared with gravel concrete at 144 lb. Mr. Short suggested that the following points should be taken into account when designing in lightweight concrete: allowable bending stress ¼ of cube strength, allowable bond stress about ½ equivalent for gravel concrete, shear to be taken entirely on reinforcement, span/depth ratios to be reduced to ¾ of those allowed in the Code of Practice. If one considers these restrictions when compared with gravel concrete, it would appear that there can be little if any economy in *in-situ* work unless the saving in weight was essential for the foundation design. The use of lightweight precast members for use in high buildings is, however, very attractive. The discussion added very little to the information in the paper, members being largely concerned about corrosion. In this respect a large number of test specimens are now under exposure to the atmosphere of Beckton Gas and Products Works and the result of this test will be of considerable value.

A. H.

MOHLG

Managing Council Houses

*Councils and their Houses**, the latest report from the Ministry of Housing and Local Government, is mainly concerned with administrative arrangements for the housing management of local authority housing. However, it is also worth more than a cursory glance by architects as it contains some much needed authoritative ammunition to help them in the further improvement of public authority housing.

One chapter of the report deals with the general appearance of housing estates and states that local authorities should aim at as high a standard in the maintenance of the surroundings of houses as in the upkeep of the houses themselves. It contends that, where a high standard in original planting and subsequent maintenance of space around buildings is set by a local authority, tenants respond and show a real pride in the appearance of their estate and of their own gardens. It advocates that authorities should ensure that building contractors clear the site properly of rubble and preserve and subsequently replace the top soil so as to encourage tenants starting new gardens who should also have skilled advice made available to them. The main recommendation made here is for planting and grassing to be made to coincide, if possible, with the completion of the houses.

*HMSO, 2s. 6d.

The report is at its weakest when dealing with repairs and maintenance. Yet the questionnaire information given by 54 authorities shows that expenditure on repairs and maintenance for the year 1956/57 varied widely between just over £6 and £33 per house or flat. It is a great pity that the report did not take the opportunity to assess whether many of the initial cuts in capital expenditure, enforced on building contracts by the Ministry in past years, have not resulted in "spoiling the ship for a ha'p'orth of tar" and were really worth while in view of high maintenance and repairs costs.

By far the most important conclusion of this report, as far as the architect is concerned, is its condemnation of the totally inadequate provision of garages and parking space in residential areas and the startling (for the Ministry, that is) recommendation: "In planning new estates, it is better to make over-provision rather than under-provision, to cater for the continuing increase in car ownership. We are of the opinion that the whole subject of the provision of garages and parking space on existing, as well as future, housing estates is one which would well repay a separate and special study."

It is to be hoped that any such study which the Ministry may initiate arising from this recommendation will tackle the problem fundamentally, from the point of view of examining the merits of housing layouts based on rear-access, Radburn-type principles and the segregation of the pedestrian and the vehicle, rather than merely a few ideas about "more garages" or "more parking spaces."

A. G.

GLASGOW CHAIR

Frank Fielden

Frank Fielden, senior lecturer in architecture at King's College, Durham University, has been appointed Professor of Architecture at the Royal College of Science and Technology, Glasgow. Since 1947 he has been in practice with H. Wharfe as "The Design Partnership."

FELIX CANDELA

Lecture Programme

The Cement and Concrete Association announce that Felix Candela will lecture on "Ten years of building thin shell structures" at the following places: Tuesday, May 5, Friends Meeting House, Euston Road, London, N.W.1. Wednesday, May 6, Peardon Smith Lecture Theatre, National Museum of Wales, Cardiff. Thursday, May 7, Great Hall, Leeds University, Leeds. Friday, May 8, Assembly Hall, Heriot-Watt College, Edinburgh. Monday, May 11, David Keir Building, Queen's University, Stranmillis Road, Belfast.

Application for tickets to those lectures should be made to: Philip Gooding, Secretary, Joint Committee on Structural Concrete, Terminal House, Grosvenor Gardens, London, S.W.1.

CRITICISM: *by J. M. Richards*

A wrong use of colour

This week J. M. Richards continues his series of critical articles with a general comment on the misuse of colour in buildings.

The clumsy facade of Camp Bird House, Dover Street, with bright, blue glass panels.



There are arguments both for and against allowing planning authorities the powers they now possess to interfere with the design (in the sense of the appearance) of new buildings. The arguments for this kind of control are weakest when they support the right to interfere with the architect's taste or judgment concerning an isolated building. They are strongest when the interference concerns the building's relationship to its surroundings, since a local authority, however unfitted for the role of censor of architectural taste, has a responsibility to protect the community from anti-social acts by individuals.

It is on this principle that a local authority would justify its right to withhold planning consent from a building that would injure the appearance of the street it stands in. It is therefore odd that urban planning authorities seem to pay little attention to one aspect of design which is almost wholly of this kind: that of colour. This certainly seems to be true of the LCC.

Colour is only good or bad in relation to other colours round it. Until recently, the range of colours available for the exterior facing of buildings was limited, but with the introduction of coloured glass, plastic and enamelled sheets for use as infill panels in a framed or curtain-wall structure, bright colours are as freely available as sombre colours, and when badly chosen these can have a destructive effect on the street such as streets were never threatened with in the past.

The number of strident, unsuitable colours that are beginning to make their appearance in London streets* suggests that the LCC passes designs on which materials like coloured glass are specified without enquiring what colour is to be used. Yet the colour is far more important in relation to the surroundings than many aspects of design that the LCC, as planning authority, sees fit to call in question. There is no need to go outside the West End of London to find several flagrant examples of the anti-social use of colour. There is one in Dover Street (Camp Bird House, architect A. G. Paton). It has glass panels between the windows of a light, very bright blue, which the LCC can hardly have envisaged as this building's contribution to the scenery of Dover Street. The whole façade is rather clumsily arranged, but it is only the colour that I am concerned with just now. It makes a raw and ugly gash in the sober street frontage, the more obstrusive because Camp Bird House faces down Stafford Street and so can be seen from several other streets as well.

The colour is one that does not go well in the London light and climate, and has no relationship with other colours round it. It is completely out of key. A similar colour has been similarly used in an otherwise neatly enough designed new building in High Holborn, Caroline House, though here one's complaint is not so great because Holborn is a more overtly commercial street, where an element of garishness is not such an affront as it is in Dover Street. Nevertheless, compare this insensitive use of colour—which again lacks any designed relationship with the colours round it—with that in another new building, Bishop's House, nearby.

* And not only London; since writing this article I have seen a particularly flagrant misuseof bright blue glass panels in Market Street, Manchester.



Above, Bishop's House, Holborn, not very satisfactory architecturally, but the greenish grey panels are appropriate.



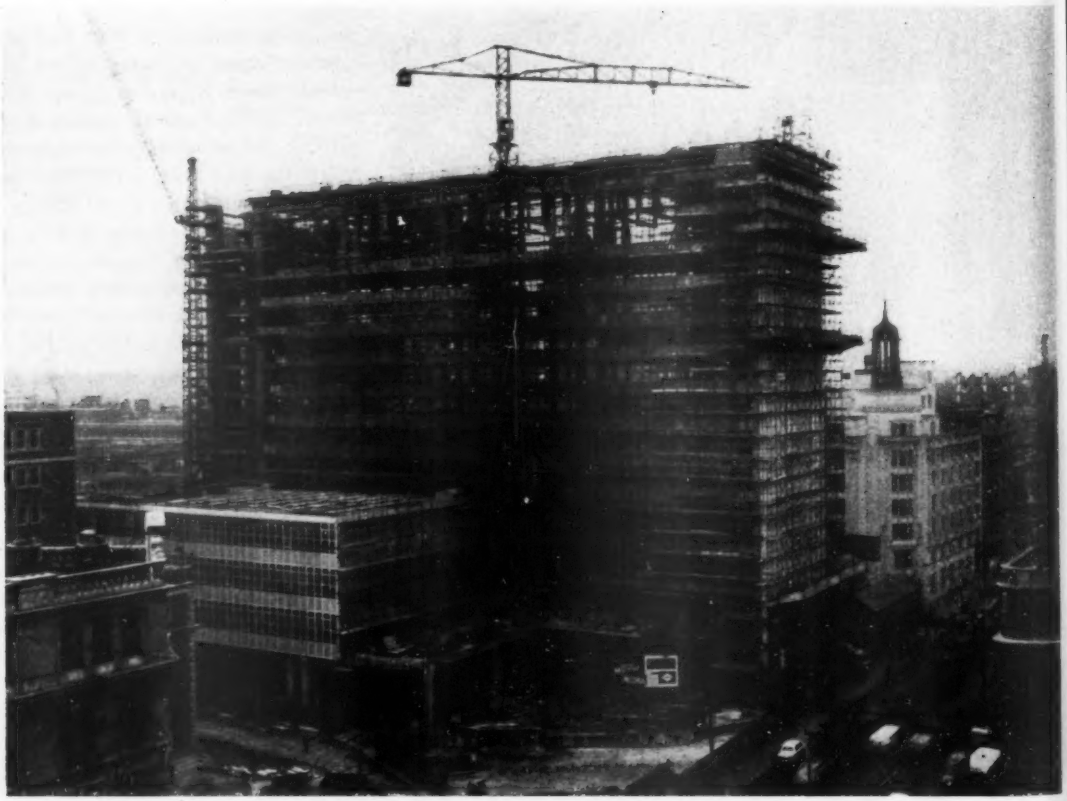
The red of the Prudential, building, Holborn, above, is muted by texture and shadows, but the horizontal bands of red of the Daily Mirror *building, below, are new and shining.*

at the corner of Grays Inn Road. Bishop's House, with its flimsy attempt to express its structure and its cliché of a cornice, is less pleasing as a design than Caroline House, but the colour chosen for the infill panels, a warm dark greenish grey, is appropriate, neighbourly and dignified.

Incidentally, a little further along the same street is the richly textured mass of Waterhouse's Prudential building, a good example if ever there was one of the use of strong colour with no local precedent, which is however completely successful from the point of view of townscape because the particular colour, a terra-cotta red, is well suited to the light and character of London and has a harmonious relationship to the other colours in the picture of which it forms a part.

Still further along the street is the still unfinished *Daily Mirror* building, at the corner of Holborn Circus. It is finished enough however for the very positive use of colour that the architects (Sir Owen Williams and A. R. F. Anderson) have planned to be already evident. Between the windows of the massive multi-storey block are continuous horizontal bands of colour, a dark red that might I suppose be justified by the claim that it is not unlike that of the Prudential. But the Prudential is a romantically modelled mass with its colouring muted by texturing and shadows, and is moreover all of a piece; whereas the hard shiny surface of the stripes on the *Mirror* building have little in the way of a controlled relationship with the other colours used.

These crimson bands, however, although they, too,



illustrate the perils of the bright colours that new glass panel infill systems have put into architects' hands (and which, it may be felt, should not be used high up on modern large-scale city buildings) are not so offensive in their setting as the bright blue rectangles of Dover Street are in theirs. Another example of blue rectangles, even more offensive in their setting, is to be found in Belgravia, though in this case one cannot claim that the LCC should have prevented them, because they are on a new telephone exchange designed by the Ministry of Works, and government buildings are exempt from control under the planning acts.

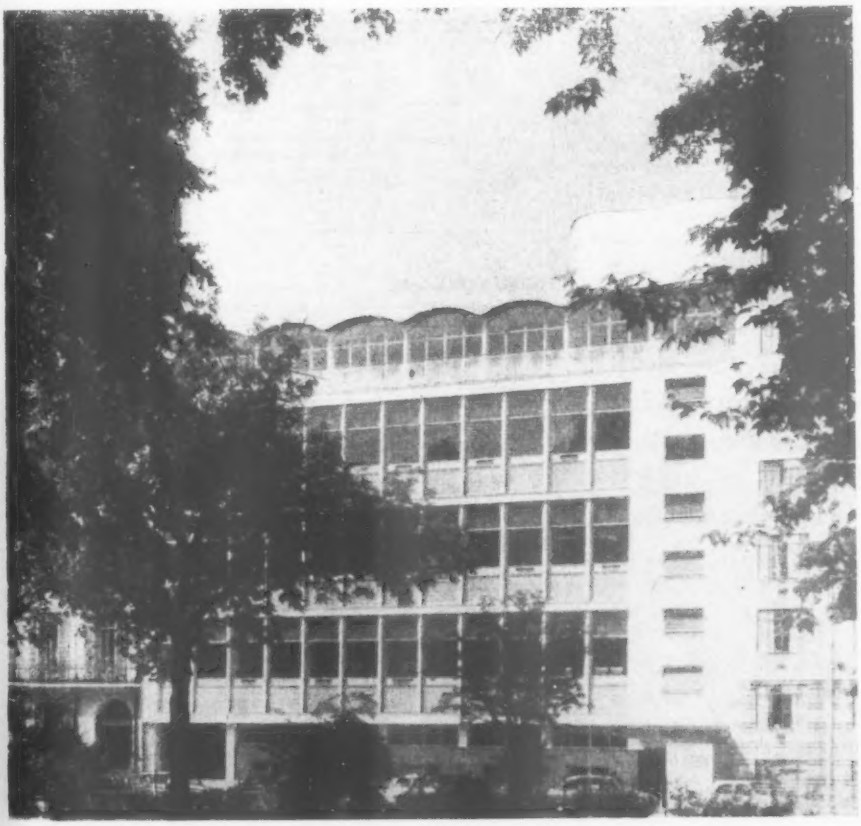
The new Belgravia telephone exchange (see the AJ for February 12) faces Chesham Place, and is visible from a long way off as one approaches from Belgrave Square. In fact it is in the middle of Belgravia, one of the few areas left in London that is consistent in scale, planning and especially colour—the colour being the creamy yellow of painted stucco. To intrude into the present harmonious picture a façade spotted with rectangles of bright blue glass is irresponsible behaviour on the part of a government department, and it would be interesting to learn how the Ministry of Works claims to justify it.

It should be added that, apart from its strident use of colour, the Belgravia telephone exchange is a well-thought-out piece of architecture with many good qualities, though some of the contemporary clichés employed on it are becoming a little too familiar. It stands next to a newish modernistic block of flats of far inferior design, but one which is made relatively innocuous by being painted white in accordance with local custom.

Colour is as important as the other abstract elements that architecture depends on—proportion, scale, texture and the rest; but present-day architects seem very uncertain how to use it. Mistakes like those I have mentioned could be explained by lack of sensibility to colour, lack of understanding of its principles, failure to visualize what a given colour was going to look like or failure to persuade a client, who wanted strident colour as a means of self-advertisement, that such an ambition was, in these particular situations, architecturally undesirable.

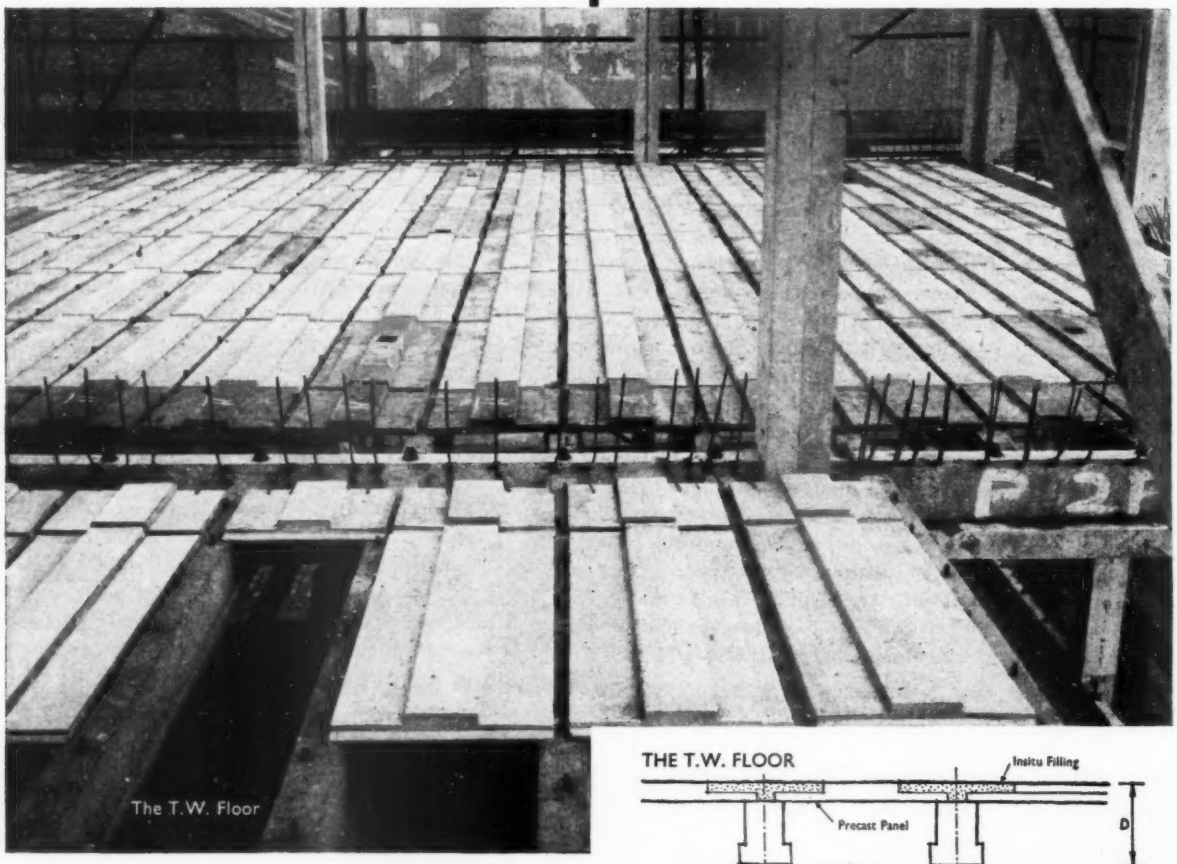
Most of the foregoing reasons imply a criticism of architects' judgments about colour, but if the justification of æsthetic control exercised by local authorities is to guard the public against architects' mistakes until such time as we have architects who can be relied on not to make this kind of mistake (which seems to me about its only justification), then the inappropriate and destructive use of strident colours is one thing the planning authorities should take steps to prevent. If the purpose of such colours is sometimes self-advertisement on the part of the client, the architect may need the support of the planning authority in keeping it within bounds.

As I don't want to be misunderstood, I must conclude by emphasizing that this is not an argument in favour of more æsthetic control; only that while we have æsthetic control the people who exercise it ought to control the things that matter most.



The use of bright blue glass in the cream painted stucco of Belgravia shows irresponsibility on the part of the MOW.

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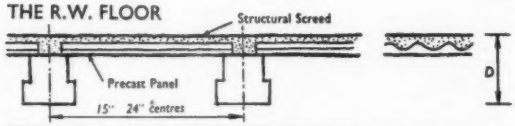
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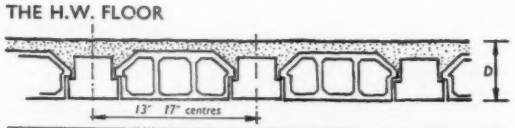
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Two recent events have drawn attention to the subject of ancient lights: a law suit in which an architect was (unsuccessfully) sued for disregarding them, and the report of a Committee advising changes in the law to overcome war time anomalies. In this article our Specialist Editor (17) Legal discusses both.

LAW REPORT

Ancient Lights

"An architect should enquire of his employer whether there are any restrictions affecting the land to be built upon, or its use for the purpose of the proposed building or work, and he should consider and advise the building owner as to any interference with rights to light " This caution, from a standard work on the duties and liabilities of architects, engineers, and surveyors, has assumed increased importance as the end approaches of a term of 20 years since the first wartime bombings in this country.

The nature of the right to light

The right to light is an easement; it applies to apertures in buildings, such as windows, and, being an easement, it is not a natural right of property but exists only in those cases where it has been acquired by one of the means recognized by the law. An easement may be acquired by an express or implied grant from one owner to another or by long enjoyment. There are three ways in which long enjoyment can create an easement, *viz.*, by prescription at common law, under the doctrine of lost grant, and by prescription under the Prescription Act, 1833. In practice this last is the normal method and the Prescription Act lays down that "when the access and use of light to and from any dwellinghouse, workshop, or other building shall have been actually enjoyed therewith for the full period of 20 years without interruption, the right thereto shall be deemed absolute and indefeasible, any local usage or custom to the contrary notwithstanding, unless it shall appear that the same was enjoyed by some consent or agreement expressly made or given for that purpose in writing."

To be an "interruption" in law, the interference (be it a wall, a screen, a hoarding, or another building) which blocks the light must have been "submitted to or acquiesced in for one year. . . ," so that actual enjoyment for 19 years and a day is in fact enough to give a building owner an easement of light.

Armitage v. Palmer

A recent case in the High Court, Armitage *v* E. W. Palmer and Partners, illustrated the importance of a clear understanding of the limits of an architect's responsibility for this aspect of the law. The plaintiff owner sued a firm of architects employed in the designing only of a block of flats for his land, on the ground that, by their negligence in ignoring rights of light enjoyed by a neighbouring building he had had to pay £850 compensation to the owner of that building by settling an action for infringement of ancient lights. Complaint had been made by the adjoining owner when foundations were being excavated but, although the architects had thereupon gratuitously advised rotating the proposed building through 180 degrees and moving the main wall 4 ft. 6 in. from the three ground floor windows of the adjoining owner, the plaintiff (in settling the action brought by the adjoining owner) had subsequently to lower the eaves and reduce the angle of the ridge of the building.

Were his architects liable? The judge held that in these particular circumstances they were not. The reason was that, though they had designed these flats, they were not to be concerned with their erection. The architect of the firm of builders engaged by the plaintiff would do this and the defendants, therefore, incurred no liability in the siting of the builders' excavations for foundations. A block plan on the drawing of the proposed building by the defendants could not fairly be taken to be a siting drawing because it gave no position from which the measurements for the marking of the footings could be taken. In any case it was not clear that the building as designed could not be erected on this site without infringing rights of light. Advice was certainly given but it was gratuitous and the offending situation of the building was never accepted by the architects as a professional obligation.

It is often believed that the rule for measuring whether an interference with light is actionable is to see if the alleged obstruction is within a space bounded by a line drawn at 45 degrees from the horizontal level of the bottom of the lowermost ancient light but this "45 degree rule" has no legal sanction.

Photometric and other measurements are often used and the commonsense test the court always applies is whether occupation of the building is made "uncomfortable in accordance with the ordinary ideas of mankind." It should also be remembered that it is only a "building" which can acquire the easement of light—a greenhouse can but a garden cannot.

Suppose the building which enjoyed the valuable right to light has been destroyed. Is the right to light also lost? The architect can usually advise the owner to have no anxiety on this point when the time comes to rebuild. Once acquired, "lights" are lost only by express release or abandonment. Abandonment is a matter of inference and intention and the inference would not readily be drawn against a person who e.g. lost the building by enemy action and has found difficulty in rebuilding it.

Background of impending legislation

But may not adjoining owners themselves acquire rights to the light now coming across a now vacant site? All over Britain, as a result of wartime destruction there are still sites surrounded by buildings the owners of which are in process of acquiring extensive rights to light and air over the land of their neighbours and if these rights mature for the statutory period of just over nineteen years and become indefeasible the value of the bombed sites and any building erected there will be greatly affected.

The owner of the bombed site, while awaiting rebuilding, has had two possible remedies; he could reach an agreement with the adjoining owner to operate as a licence and suspend his right to acquire the easement by lapse of time or he could erect a hoarding or screen opposite the window or aperture which is acquiring the easement and keep it there for at least a year.

But after the war he could not get building materials to do this and after the Town and Country Planning Act of 1947 he probably could not get planning permission to erect e.g. a rough screen against his neighbour's scullery window. ("Development" under the Act includes the erection of a screen and there have been cases where planning authorities have refused permission for such screens to be erected.)

These problems arise—particularly in the City of London and in Bristol and Manchester—because the servient owner cannot build in time. An owner might have had a site ripe for development in 1938, have found difficulty in starting to build before the war began, and have been wholly prevented until building licences were abolished in 1954. Such real and practical difficulties led to the appointment in March 1957 of a Committee under the chairmanship of Mr. Justice Harman to advise on whether British law on ancient lights now required amendment. The Report of the Committee—which received evidence from the RIBA—was published in July last.

Proposals of Harman Committee

Briefly, it is proposed that the necessity of erecting a screen for a year against maturing "lights" should be dispensed with and that the same results should be secured by registration of a statutory notice against a prospective dominant building in the register of local land charges (where burdens on land are conveniently registered and are open to public scrutiny) and by service of such notice on interested parties, such as the adjoining owners.

If this system of statutory notices is in operation by early 1960 it will enable all those who suffered war damage after the end of 1940 to protect their property by prompt service of the statutory notice. But it will not protect those who suffered war damage earlier than 1940 or those whose sites were open at the beginning of the war. The Committee has therefore recommended a temporary extension of the 20-year period of prescription to 27 years in the case of all proceedings to enforce ancient rights which are started between the publication of the Report and the end of 1962.

Continued on page 549

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Ancient Lights continued from page 548

This means that, if these reforms are effected this year, an owner with a site unbuilt since as long ago as 1933 will be able, if he promptly serves a statutory notice, to protect himself fully against the acquisition of ancient lights by his neighbours. With very minor variations, these proposals are incorporated in a Rights of Light Bill which has recently been introduced in the House of Lords.

An architect is not expected to supply minute and accurate knowledge of the law but he should know the general rules concerning private rights which are likely to affect his client. Unless, as Armitage v. Palmer & Partners showed, his work is unconcerned with the actual siting of a building, he has a duty to investigate obvious ancient lights as part of his general obligation to examine the site in question in person or through a skilled assistant, but when the recommendations of the Harman Committee are adopted the present anxieties of that duty should be happily diminished.

DIARY

Current Landscape Design Problems. Talk by James W. R. Adams at the Town and Country Planning Association, 28, King Street, W.C.2. 6.30 p.m. APRIL 13

The Progress of Housing in Stepney. Exhibition at Stepney Central Library. APRIL 13 TO 30

Films by Charles Eames. At the RIBA, 66, Portland Place, W.1. 7.30 p.m. APRIL 14

RIBA Annual Discourse. By Charles Eames at the RIBA, 66, Portland Place, W.1. 6 p.m. APRIL 15

A Review of Recent Legal Cases Affecting Quantity Surveying Practice. Talk by Rex Proctor at the RICS, 12, Great George Street, S.W.1. 6 p.m. APRIL 15

Annual Reception. At The Architectural Association, 34-36 Bedford Square, W.C.1. 8.30 p.m. APRIL 16

Modern Techniques in Concrete Construction. Conference at the Institute of Advanced Architectural Studies, York. APRIL 16 TO 20

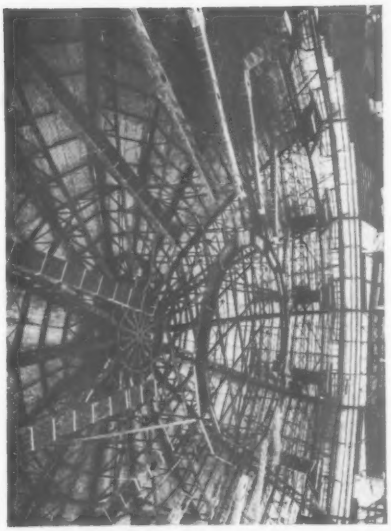
Engineering, Marine, Welding and Nuclear Energy Exhibition at Olympia. APRIL 16 TO 30

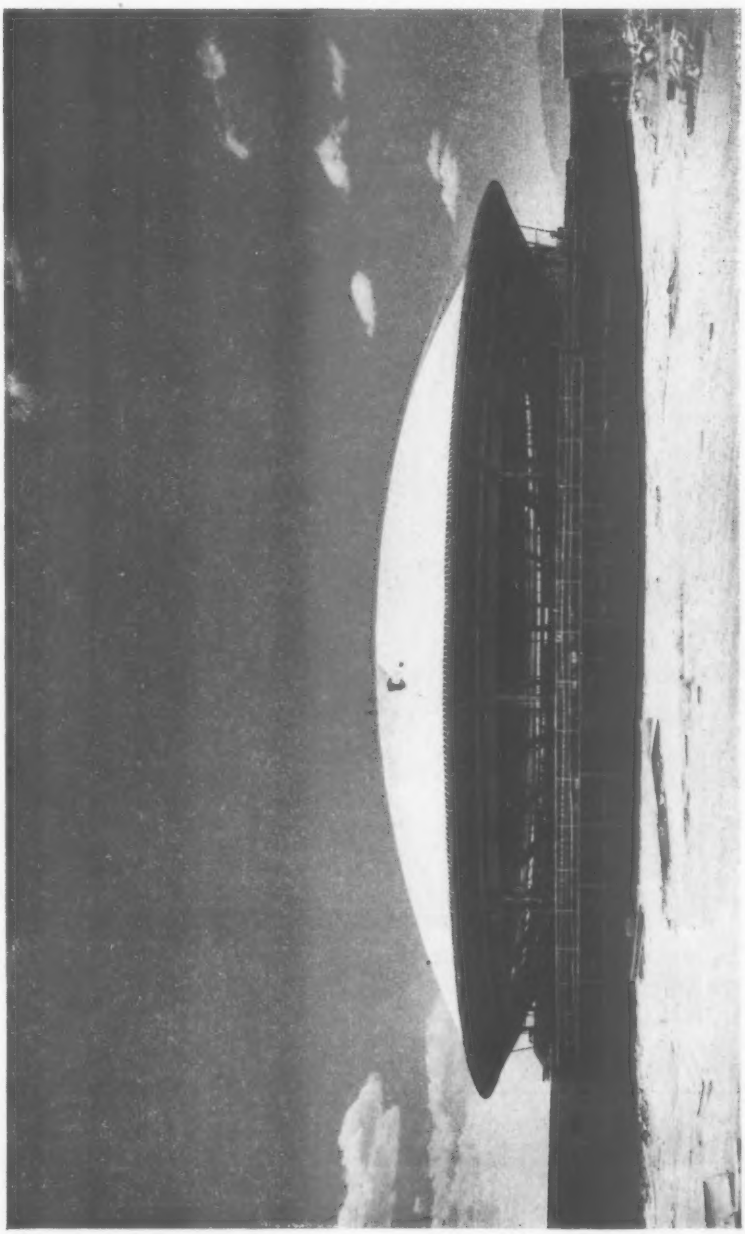
Britain and the Technical Development of Eastern Commonwealth Countries Under the Colombo Plan. Henry Morley Lecture by W. Railston at the RSA, 6, John Adam Street, W.C.2. 5.15 p.m. APRIL 16

Compensation and Betterment. Talk by J. D. Trustram Eve at the Ordinary General Meeting of the RICS, Junior Organisation. 12, Great George Street, S.W.1. 6.15 p.m. APRIL 16

Problems and Principles of Timber Usage. Weekend Course convened by the Midland Wood Society at Attingham Park, Shrewsbury, Shropshire. (Persons interested should apply to the Warden, Attingham Park.) APRIL 17 TO 19

ASSEMBLY HALL AT THE LAS VEGAS CONVENTION CENTER





In profile the domed assembly hall, left, at the Las Vegas (Nevada) Convention Center is reminiscent of the Dome of Discovery at the Festival of Britain, although structurally it is different, having a steel frame and a corrugated aluminium roof cladding. The interior view, above, makes one wonder, however, what point there was in having a dome at all, as the dome carries a suspended ceiling with catwalks for access to the lighting and air-conditioning. Architects: Adrian Wilson and Associates.

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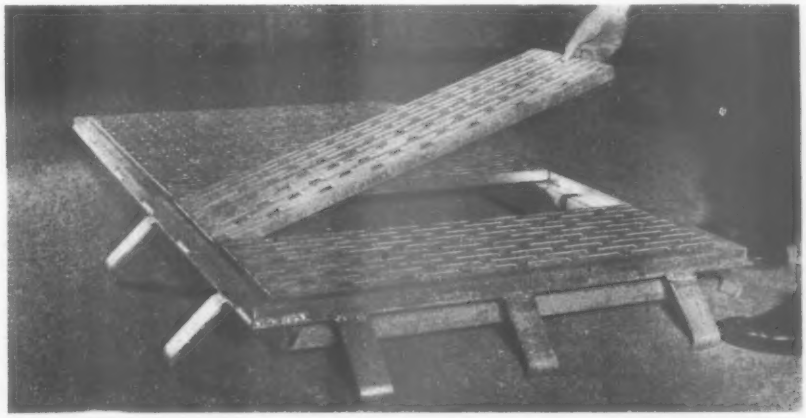
technical section

THE INDUSTRY

This week Brian Grant describes an aluminium flooring, a lavatory cistern and pan, a gas washing machine and an oil-fired boiler.

Industrial floorings

Alaflor is an extruded aluminium alloy grid flooring produced in 6-in.-wide sections welded together into panels, the open ends of which are banded together with flat bars. The units are supplied either plain, or punched with square or rectangular holes to give a non-slip surface. The flooring is about half the weight per square foot of a steel floor of equivalent strength and the cost of periodic de-rusting and repainting should be saved. To prevent bi-metallic corrosion fixing should be with stainless steel or cadmium plated bolts. (*Archibald Low & Sons Ltd., Glosgow.*)



A panel of Alaflor extruded aluminium alloy grid flooring.



The Uni-Lynx plastic cistern with ceramic pan.

Plastic cistern, ceramic pan

Shires, well known as manufacturers of plastic cisterns, have just introduced a combination Uni-Lynx unit which consists of a 2- or 3-gallon plastic cistern and a pottery wash down pan with a trap to BS 1213 dimensions. The unit stands only 29 in. high so that it is easy to install below windows, and it has been designed to avoid dust collecting crevices. The cistern is held to the pan by two bolts, and the only plumbing needed is to fix the inlet, overflow and trap. A seat with a completely overlapping cover is used, the seat being in black, though coloured covers are available. The Uni-Lynx can also be supplied with a ceramic cistern and pan in white and a range of six colours. (*Shires & Co. (London) Ltd., Greenbottom Works, Guiseley, Yorks.*)

Gas washing machine

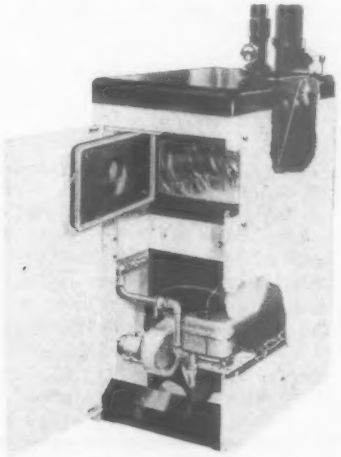
The illustration below shows the new Morley "59 Plus" gas washing machine, which has a capacity of 11 gallons, a hand wringer which folds away, and a hand operated washer unit as an extra. The water is heated by gas, and the unit has rubber tyred wheels so that it can be easily stowed away under the draining board. (*Morley Products (Padiham) Ltd., G. & M. Group, 48 Grosvenor Gardens, London, S.W.*1)

New oil-fired boiler

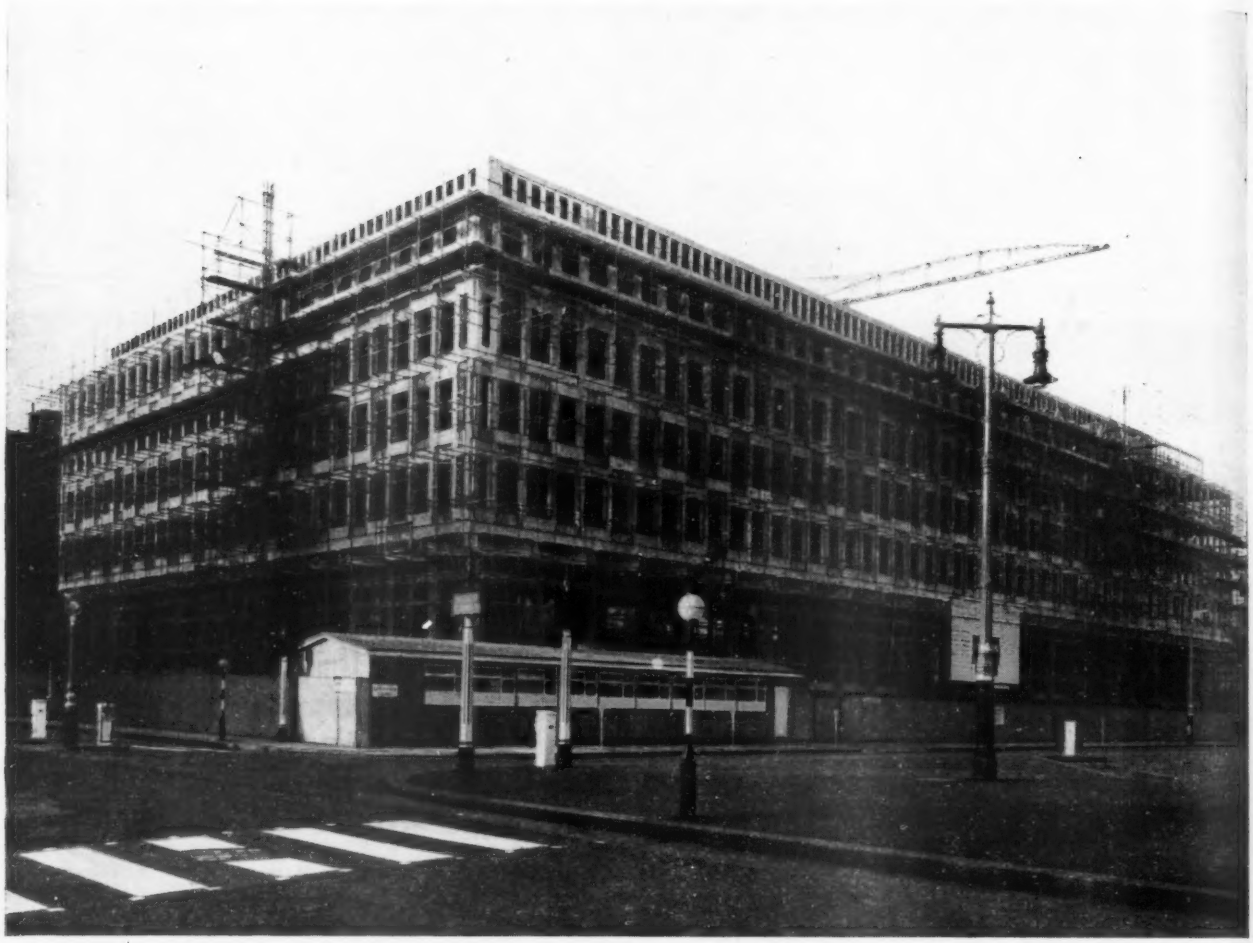
Ideal have just announced a range of Paragon oil-fired boilers which are produced in four sizes with outputs varying

Below left, the Morley 59 Plus gas washing machine. Below right, one of the new Ideal Paragon oil-fired boilers.





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from 35,000 to 65,000 B.Th.U. per hour. The oil burner is a fan assisted vaporising type fed by gravity and controlled by thermostat. The boiler is constructed of cast iron sections surrounded by a sheet steel jacket. The output depends on the number of cast iron sections used and the depth from front to back varies correspondingly; other dimensions are: height 34⅜ in. and breadth 18¾ in. Prices vary from £86 to £98. (*Ideal Boilers & Radiators Ltd., Ideal Works, Hull.*)

The Electrical Engineers' Exhibition

The Electrical Engineers' Exhibition was held this year at Earls Court from March 17-21. We publish a report prepared by our Specialist Editor for Electrics.

The overall standard of the equipment shown at this year's Exhibition was higher than at last year's. This may mean that the quality of manufactured goods really is improving. Or it may mean (and this seems the more likely) that the less reputable manufacturer stays away.

Against this, there were probably fewer original ideas among the new products than ever before. We are in a period of consolidation, when Jones and Robinson are manufacturing equipment first brought out by Smith last year, while Smith himself is busy tidying up the loose ends and eliminating the minor faults. After the very rapid changes of the last 10 years such a trend is inevitable, and is no bad thing, but it leaves the reviewer little to write about.

Accessories

Britmac have enlarged their range of "Flip-flap" switches with a rocking lever in place of a dolly, which they introduced last year. The original models had plastic, rather bulbous, plates, while the new ones have metal plates, and can be fitted with either plastic or metal switch levers. Some of them look very neat, although they are not quite so well styled as the corresponding Italian designs now available in this country.

Two other firms, Wandsworth and Contactum, have also brought out switches of a similar kind (see Fig. 1); those by Wandsworth in metal, and those by Contactum in plastic. Both are well worth looking at.

Fig. 1. Switch by Wandsworth with a rocking lever in place of a dolly.



Several firms, notably Marbourn, Ltd., of Tottenham, are making plaster depth 13 amp. socket outlets, while Clang have brought out a twin outlet which can be fitted to a single gang box. Although the result is better described as "semi-recessed" than flush, this does make it possible to extend an inadequate installation without much expense or mess.

Ashley have introduced a range of 13 amp. outlets moulded in a tough and resilient plastic which will withstand much harder usage than the conventional type. They cost about 50 per cent. more than the usual range, but would be worth it in certain conditions.

MK had on show some ceiling switches with built-in indicator lights. Something like this has been needed for a long time, and will be particularly useful for towel rails and low temperature heating panels in bathrooms. I understand that those on show are only prototypes, so there may still be time to improve the styling.

Thermostats for under floor heating

While the electrical industry has been engaged in battle with the detractors of embedded floor heating, it has occurred to quite a number of people that one of the most likely reasons for the few, widely publicised, failures is the use of unsuitable types of thermostat.

When the contacts of a thermostat are closed and the current is flowing, there is bound to be some heat developed inside the instrument, which will, naturally, tend to warm it up. This effect is quite small, and is unlikely to exert any significant influence in a period of two or three hours, so that when the thermostat is used to control a conventional installation, the internal heating can be neglected in comparison with the effect of the heating appliances themselves.

Floor heating makes very much more severe demands, and the current may be flowing for five or six hours before there is any significant change in the air temperature, by which time the thermostat may have switched off owing to its internal heat emission.

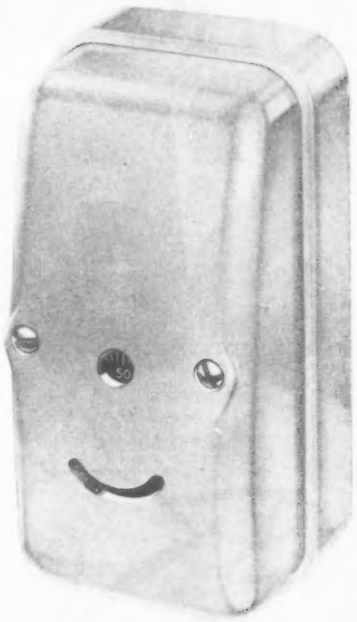


Fig. 2. The Wylex thermostat.

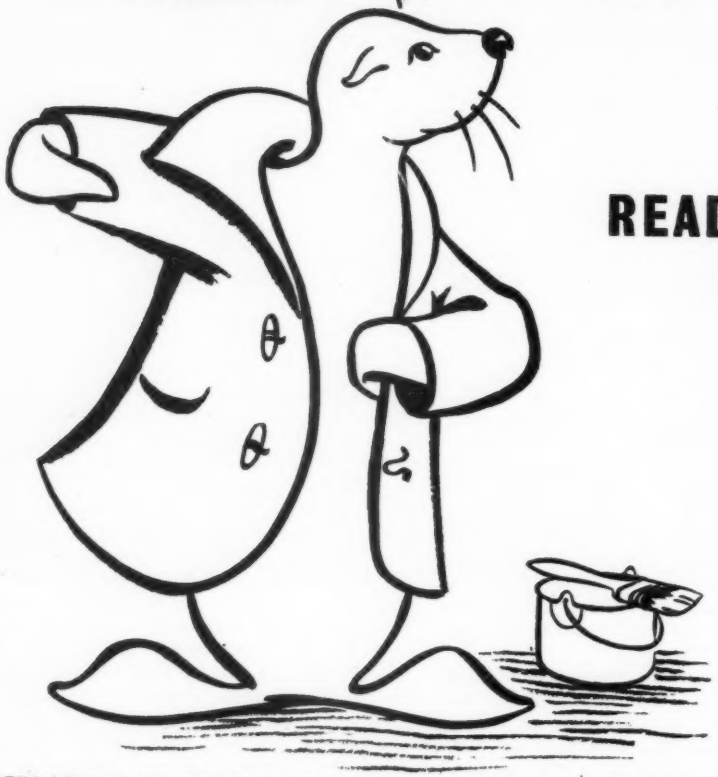
More than this, it may take weeks to establish the fact that a thermostat controlling a floor heating installation is reading two or three degrees high, or low, during which time electricity bills may have been mounting, or the room may have been too cold. The best quality thermostats have always been free from these defects, but as one of the reasons often given for choosing floor heating in the first place is its low capital cost, it is rarely possible to use an expensive instrument.

Proscon have adapted their standard instrument for floor heating by insulating the temperature sensitive element from the switch contacts, which should eliminate false operation due to internal heating. They have also brought out an extremely neat and cheap instrument to set in the floor in order to prevent overheating. This will be very useful in those cases where one cannot be sure how much heat will be lost downwards, or whether, for instance, carpets are going to be used.

Wylex have also brought out a thermostat which has been designed with floor heating in mind (see Fig. 2). It is provided with a pattress to which the wiring is secured, and which can be fixed to the wall at any convenient stage in the building operation. The thermostat itself is screwed on to the pattress at the last stage of all, when it is unlikely to be damaged. This should do much to eliminate inaccuracies owing to knocks and blows during decoration. This is the first venture by Wylex into the field of heating control, and I hope that it will be as successful as their other innovations have been.

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C.102

technical section

Light fittings

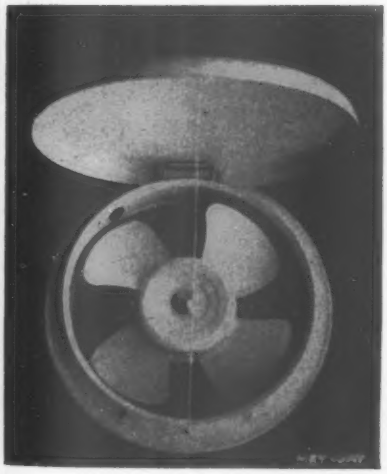
There are at least two new ranges of convertible fluorescent fitting on the market, one by Ekco, and the other by Falks'. These invite comparison with the Crompton "New Range" and GEC 101 range, which were described very fully in the review of last year's exhibition.

Simplex have extended their range of "Endura" fittings, for use in chemistry laboratories and similar places. These now include 4 ft. and 2 ft. versions for both single and twin tubes. Falks' have also brought out a fitting, which, like the Endura, is sheathed in plastic, but in this case the plastic is bonded to the metal spine. The fitting is more expensive than the Endura, but is probably worth it in certain industrial conditions.

Extractor fan

The only other item which seems to call for mention is one which has already been spotted by Brian Grant (see "The Industry," December 4, 1958). This is a small window extractor fan manufactured by Metway Products. This compares very favourably in price, and quite favourably in appearance with the well-known makes. The same firm have also introduced some small plastic bulkhead fittings which are very cheap, and should be useful in some situations.

Fig. 3. The Coolerway extractor fan by Metway Products.



CLASSIFICATION FOR TECHNICAL ARTICLES AND INFORMATION CENTRE

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INFORMATION CENTRE

A digest of current information prepared by independent specialists; printed so that readers may cut out items for filing and paste them up in classified order.

4.85 planning: urban and rural

CAR PARKING

Parking. Geoffrey Baker and Bruno Furaro. Published by Reinhold Publishing Corporation, price 76s.

This book deals comprehensively with the subject of car parking in five main chapters with the self-explanatory titles of Why? Where? How Much? What Sort? and Who's to Pay? There is also a useful, practical chapter on parking layout and dimensions with an ingenious set of tables to show what parking pattern is best suited to a particular shape of site, and how many cars can be parked upon a site at any specified parking angle. There are, in addition, interesting chapters on the design and layout of ramp and elevator garages and on the landscaping of parking places.

The first chapter is of particular interest to us in this country because it contains a general review of the situation and problems arising from a much higher degree of motorization than we have yet achieved, but towards which we are undoubtedly moving. In connection with urban motorways, for instance, it is extremely interesting to read statements such as the following—"Traffic is where people are . . . here is the engineer's excuse for those express highways on vast embankments which are now splitting apart so many old-established communities . . . which increase traffic congestion within the central city by dumping an increased traffic load on the unimproved street system . . . as though some drunken planner had zoned the roads in reverse."

The illustrations are a particular feature of the book, being so profuse and so fully captioned that they can be read in sequence almost independently of the text. Every idea, every theory which has ever been canvassed in this country can be found in reality in the photographs in this book. Here are vast terminal car parks in cities, regional shopping centres surrounded by enormous areas of parking, peripheral parking places, parking places under city squares, and elaborate mechanized multi-storey garages. There are even some photographs of landscaped car parks which encourage one to think that perhaps after all there are ways and means of making mass groupings of cars look less objectionable.

This is an important book deserving of careful study by all architects and planners who are concerned that we should take the right decisions at the present critical stage in the development of motor traffic.

12.67 materials: metals

CORRUGATED STEEL SHEETS

Hot Dip Galvanized Corrugated Steel Sheets. BSS. 3083:1959. Published by BSI. 4s. 6d.

This standard deals with a material that hardly ever appears on architects' drawings, in this country, but one which is historically significant. Four types of sheet are covered—with zinc coatings varying from 1·25 to 2·5 oz. of zinc per ft. sup.; widths from 21 in. to 30 in. and lengths up to 12 ft. The standard specifies profiles and describes tests to be made with acid, for adequacy of coating.

25.132 water supply and sanitation

TAPS

Draw off taps and stop valves for water services. BSS. 1010:1959. Published by BSI. 10s.

This standard specifies all the various traditional forms of tap that seem to have remained much the same in design for generations. It covers bib, pillar, easy clean, non-easy clean, angle taps and sink columns and globe taps from ¼ in. to 2 in. nominal size. Diameters, thickness, dimensions, thread pitches, and so forth are specified in great detail as well as quality of metal and gland packings. Ten shillings for 48 pages seems a great deal for so small an item in the building, the more so when the tests specified appear to give no assurance against the commonest failure of taps, namely the too-frequent need to re-washer. Whether this is due to the material from which washers are made or whether it is due to inadequate area of seating, or to that curious feminine trait of turning off the tap with vice-like determination, a standardized design should provide for it.

25.133 water supply and sanitation

SPRAY TAPS

Spray Taps. Part of BRS Digest 118. HMSO. 3d.

After rehearsing the savings which spray taps can effect, this Digest gives useful details on the use both of spray mixing taps and of ordinary spray taps. Gives three to four pints per minute as "a satisfactory and economic rate of flow" for both types. Since it is vital that both hot and cold pressures be equal, cold supplies to mixing taps cannot be taken directly off the main. Don't take the hot water off a dead leg pipe. A 3 kW, 2-gallon storage heater (set at 120 deg. F.) should be about right for three lavatory basins. Where the user needs no control of the temperature (*e.g.* in junior schools) an ordinary spray tap can be used, connected to a supply of water at about 105 deg. F.

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technical section

24 LIGHTING

the lighting of art galleries

May 8 is the sending-in day of the *Sunday Times* Competition for the National Gallery Extension. Considering that some of our readers who are going in for the competition may want to check their designs for lighting criteria, we have asked our Specialist Editor for this subject to rehearse the known facts which bear on the problem.

The purpose of this article can be simply stated; it is to equip architects as fully as possible to design the lighting of art galleries. Towards the end of the article are two short summaries. The first sums up all the points of lighting which must be considered in gallery design. The second gives the drill for calculating the levels of natural illumination. Most of the text concentrates quite naturally on the daylight side since this is usually the architect's responsibility. One or two essentials of artificial lighting are, however discussed. The starting point of the article, from which the check-lists develop, are a few simple facts about the ways in which our eyes tend to behave in different types of environment. These facts then develop into a set of principles which are summarised in the check-lists. At no point are any stock answers given to the problem of gallery lighting. This is because the lighting is one of a number of factors which have got to be fully integrated in order to produce an environment in which paintings can be enjoyed to the full in pleasant, comfortable and stimulating surroundings. To develop designs purely on the basis of the lighting requirement would, in fact, be fundamentally wrong.

A question of brightness

The principles involved in gallery lighting are based upon a few simple facts about human vision. From the point of view of gallery lighting, perhaps the most important of these is that our eyes are naturally attracted to the brightest and most contrasty object in the field of view. This fact determines one of the major aims of good lighting. This is to make the object upon which our eyes are concentrating, whether it be a picture in a gallery, a pencil point on a drawing board or a chalkboard in a classroom, rather brighter and more contrasty than its surroundings, so that it becomes a natural centre of interest. To achieve this, the brightness of all the surfaces of the interior must be carefully controlled. The first step will be to provide a "punch" of preferential light onto the exhibits so that they have this natural emphasis. The next point to consider, perhaps, is the question of the light sources. These are, of course, bound to be the brightest things in any interior, whether it is the sky seen through the glass by day, or the artificial lamps by night. In order for them not to compete in terms of brightness with the exhibits, a most essential step will be to screen or otherwise control them so that they are not normally visible. The remaining surfaces of the interior can now be treated in such a way that they too, do not compete with the pictures. The brightness of any surface will depend upon the amount of light it receives, and upon the proportion of that light it reflects back to your eyes, in terms of its reflection factor or Munsell Value*. Thus by a careful modulation of the lighting system, and of both the broad and detailed colouring of the interior, a good pattern of brightnesses can be created for viewing the exhibits.

A simple practical example of these techniques would be the natural lighting of a piece of free-standing sculpture. The steps in the design process might be as follows:

(*i*) provide a roof light to give the exhibit a punch of preferential light.

(*ii*) provide deep reveals to the roof light so that the sky cannot be seen from normal angles of view, and so will not compete with the exhibit (alternatively a system of louvres might be used to achieve the same effect).

(*iii*) whilst keeping the ceiling white or a very light colour, paint the reveals to the roof light (or the louvres) to a medium grey of about Munsell Value 6 or 7. Although they are receiving more light than the sculpture, such a step will tend to eliminate them as a potential distraction by reducing their brightness (see Fig. 1).

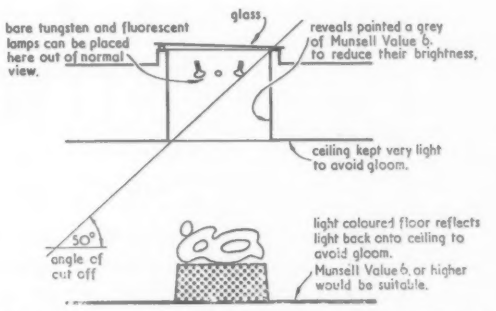


Fig. 1. Diagram showing method of giving preferential light to free standing exhibit while avoiding glare.

In contrast, we can examine the clerestory method (Fig. 2), which exists in several galleries both in this country and abroad. A major point of criticism of this method is that the pictures, far from being preferentially lit, are in deep shadow, at just about the worst lit point in the room. At the same time things are made worse because when you attempt to look at the pictures there is, immediately above them (unless there are buildings or trees in the way), a bright strip

* See B.S. 2660 *Colours for Building and Decorative Paints.*



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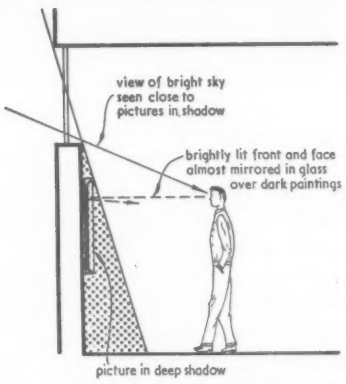


Fig. 2. Diagram showing bad lighting conditions obtained by clerestory.

of sky seen through the clerestory. The situation is rather similar, if not quite as extreme, as trying to read the number plate of a car at night when the headlights are trained straight at you. A further refinement in the ineptitude of this method of lighting occurs if the pictures are glazed. As you look at the pictures, or course, your whole face and body is brightly lit, and is clearly seen reflected in the glass in front of the shadowed pictures. But the question of reflections is a matter of detail which can be considered more fully later in the article.

The general interior

Having discussed the factors involved in lighting the exhibits, we can consider the question of the interior as a whole. Here a lower level of illumination than that on the exhibits will be satisfactory, but there should be enough light for general circulation, reading catalogues, and so on. At the same time it will be necessary to avoid any sense of gloom through surfaces appearing too dark, or through glimpses of unscreened sources of light. Assuming that most, if not all, of the direct light is played on to the exhibits, the achieving of a satisfactory level of illumination for the rest of the interior will depend mainly upon the amount of inter-reflected light, that is to say the light which is scattered through the interior after reflection off the walls, floor and ceiling. The level of illumination achieved by this inter-reflection will largely depend upon the use of light colours for the main surfaces of the interior, where this is consistent with other requirements. In some cases, however, this indirect lighting may not be sufficient to avoid gloom, and additional well-screened daylight and artificial sources may then become necessary.

The way in

It is a well understood fact that our eyes can adapt to different levels of brightness, just in the same way as a camera stop can be adjusted to achieve the right exposure. Thus when we enter a building in the daytime our eyes adapt down to the lower levels of brightness inside. This process takes time, however, so that when, for instance, you enter a cinema during a performance, although the screen is obviously clearly visible, it may well take up to 15 or 20 minutes before you are fully adapted and can see anything of your immediate surroundings. This is, of course, an extreme case, but the process is also taking place when you enter a building, particularly on a bright or sunny day. The emphasis will be greater if the interior is artificially lit since the levels inside of, say, 20 to 30 lumens per square foot will appear very low in comparison with perhaps 5,000 to 10,000 lumens per square foot in the fine summer weather outside. Designing the way into the gallery so that there is some preconditioning before entering the exhibition space, to allow a time-lapse for adaptation is an obvious advantage. This could be handled in at least two different ways. One would be to have circulation space from the entrance in which there was a gradual reduction in the level of illumination as you went inside. Another would be to rely on what would amount to shock treatment, by having an extended way in frankly lit to low level, lower than that of the exhibition space. This would, of course, need to be carefully designed without steps or other hazards, and with enough light to see which way to go.

Having discussed the broad outline of gallery lighting, some points of detail remain to be considered.

Colour of walls

It has been established at the beginning of this article that a major objective must be to ensure that pictures are the brighest and most contrasty things in the field of view, and that the most important step to achieve this is to light them preferentially. In terms of detail, however, it is also necessary to consider the colouring of the hanging walls. Almost invariably, pictures are framed, so that there is a separator between the canvas and the background wall, and this tends to allow a certain measure of freedom in the choice of colour. Nevertheless it should as far as possible be chosen so that it is not brighter than the pictures. At the same time care should be taken that there is not an excessive contrast between the frame and the background, which would detract from the content of the pictures. In practice there are often difficulties because, of course, no two pictures are precisely alike in their lightness or contrastiness, and some compromise must be made in the choice of background colour. One helpful factor in large collections is, however, that they are usually hung in groups which are relatively consistent in lightness and contrast, such as with 18th century portraits, post-impressionists, pre-raphaelites and so on. In such circumstances, it is usually possible to provide a background which reasonably meets the requirements of one such group. A further factor to bear in mind, which has already been stressed, is that it will usually be desirable to keep the walls relatively light so that they can, by inter-reflection, contribute to the illumination of the interior generally. If this is the case, these two opposing requirements must be compromised, and in such circumstances a lower limit of lightness

technical section

for the hanging walls will usually be about Munsell Value 7 or 6. Recent experience suggests that fairly strong colours, of from Munsell Chroma 4 to 10 can be successfully used. Where the exhibits are frequently changed, some device such as reversible panels might be useful to allow an alternative choice of background colours to be immediately available.

Colour distortion by artificial lighting

Architects are only too well aware of the way in which colours can change in their appearance under artificial lighting. There are two different types of colour distortion which are perhaps worth mentioning in this context. Tungsten lamps cause a general shift in emphasis towards the orange-red end of the spectrum, so that blues appear weaker and duller, whilst reds tend to appear brighter and more vivid. This uniform change over the whole gamut of colour is something to which your eyes become adapted fairly readily, so that you are not conscious, under normal circumstances, of the marked alterations that have taken place. But such large distortions are generally regarded as unacceptable for the exhibition of paintings, the situation being readily apparent as soon as any critical examination is made of the changes in colour appearance. The other form of colour distortion is that caused by most fluorescent lamps. Such tubes do not give off a smooth spectrum, there tending to be peaks of output corresponding to the wavelengths of the bands of light given off by the mercury vapour, which is causing the fluorescent powders coating the lamp to give off light. These peaks at certain wavelengths cause a form of distortion which is usually instantly recognizable, and to which your eyes cannot adapt, so that you are continually aware of the changes in colour appearance which have taken place. The distortion is not necessarily any greater than that caused by tungsten lamps, it is just more noticeable.

In recent years there has been developed in this country a particular type of fluorescent lamp known as the "colour matching" tube. In its design a considerable loss in efficiency has been accepted in order to achieve the best possible rendering of colours.

The performance of these lamps in this respect is excellent, but there are two minor defects which occur in their use. They provide light which is very slightly deficient at the red end of the spectrum, and at the same time the overall effect of using them in an interior is that the lighting appears rather cold and blue. Practical experience with such lamps suggests that these two faults can be overcome if a certain amount of tungsten lighting, with its red bias, is used in conjunction with them. In terms of levels of illumination on the exhibits, a ratio of about 3:1 colour matching to tungsten has been found to give excellent results. The tungsten can often be conveniently provided in the form of diffusing spot lamps, and has the added advantage of introducing a small amount of sparkle, highlight and shadow, particularly on gilt frames, that the even, shadowless illumination of fluorescent tubes alone cannot provide.

Blending of natural and artificial light

It would be a mistake to regard the natural and artificial lighting as two quite separate alternative methods of illuminating the exhibits. In fact, in the British climate there are many days when the level of natural illumination will be very low, and it will be necessary to use the artificial lighting to supplement the daylight. This suggests the idea that the two forms of lighting should as far as possible have similar characteristics, particularly with regard to the position of the sources and their distribution. Such integration would also mean that the appearance of the gallery would be similar, whether by day or night, and this idea has considerable merit from a purely architectural point of view.

Such blending of natural and artificial lighting will also require that the colour of the light given off by the lamps should be similar to that of the daylight. The solution already suggested on the basis of colour rendering will be found to be reasonably satisfactory in this respect. It should be remembered, however, that the colour of daylight itself changes according to the weather, blue sky being different from an overcast of fog. Thus matching daylight with an artificial installation in this respect can only be done approximately. Many sources are nevertheless unsuitable in this respect, the rather orange light of tungsten being, for instance quite unsatisfactory.

Sunlight

There are three reasons why the penetration of sunlight into an art gallery should be limited. If there are patches of sunlight on the walls, they will become a potential distraction competing with the pictures. At the same time, strong sunlight, if it falls on the pictures, may do them physical damage by causing fading of pigments, and drying out of the canvases so that they split. Lastly, sunlight will obviously tend to put a heavy load on any air-conditioning, thereby making a larger plant necessary.

It must be said quite frankly that no simple solution to this problem can at the moment be given, and the subject is capable of considerable further scientific study. Certain methods which are partially successful, can, however, be described.

(*i*) Highly diffusing glass may be used to scatter the sunlight. This does not get rid of the heat load;

(*ii*) heat-absorbing glass might be employed. This, however, also absorbs a high percentage of the daylight, so that a larger area of glazing will be required for the same level of illumination;

(*iii*) fixed or adjustable louvres might be used. These will tend to make the area of glazing needed larger. Adjustable louvres might, however, be successful if carefully designed in conjunction with the orientation of the building. But no existing example can be quoted;

(*iv*) translucent blinds which could be drawn across the glazing. The precise material chosen would not have to give rise to any colour distortion. No testing of fabrics for this purpose has apparently yet been made.

technical section

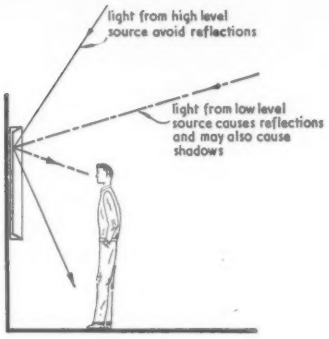


Fig. 3. Diagram showing reflection on glass of a low level light source and the avoidance of reflection by placing the light high.

Reflections

The problems of reflections have already been briefly raised in discussing clerestory lighting (Fig. 2). The gravity of the problem will depend very much upon whether or not the pictures are glazed, and one of the major aims in air-conditioning galleries is to remove this source of frustration. Even without glass, however, many pictures tend to be glossy, so that precautions should still be taken to avoid reflections. The light sources, whether glazing or lamps, should therefore be placed so that their mirrored image cannot be seen in the pictures. For top-lighting this is usually best achieved by a high angle of incidence (Fig. 3). Care should be taken that the light does not fall so steeply that the frames cast shadows on to the pictures. If there is glass, reflections in it of your face or of the interior will be minimized if the pictures are preferentially lit. This has, of course, already been recommended for other reasons.

Maintenance

Before finishing this discussion of the principles of gallery lighting, it is useful to raise very briefly the question of maintenance. With time, of course, dirt will settle on both the inside and outside face of the glazing, and upon the artificial lamps and fittings, and regular cleaning will therefore be essential. In addition, lamps will need to be replaced, and attention given to the auxiliary gear of fluorescent tubes. It is a great advantage if permanent means of access can be provided for these very necessary jobs, by catwalks or similar means. Inaccessible glazing or fittings will almost inevitably be poorly maintained, and the levels of illumination will suffer as a result.

Summary of principles

We can now summarize the conclusions to be reached from this discussion of the principles of art gallery lighting in the form of a check-list.

1. Preferentially light the pictures and other exhibits so that they become a natural centre of interest. A level of 2 per cent Daylight Factor and 10 lumens per square foot has generally been accepted as satisfactory in the past. About twice this, that is to say 4 per cent. Daylight Factor or 20 lumens per square foot would be a better standard to adopt.
2. Carefully screen the sources of light, both glazing and lamps, so that they are not normally visible.
3. By a combination of lighting and colour, control the brightness of the other surfaces of the interior, so that they do not compete with the exhibits.
4. Ensure that the rest of the interior is adequately lit to a somewhat lower level. Provided the major surfaces are light in colour, this may be partly or completely achieved by inter-reflection. Typical minimal levels to aim for would be floor, Munsell Value 6, walls, Munsell Value 7, and ceiling, Munsell Value 9.
5. Consider the design of the way into the gallery so that the eyes may have sufficient time to adapt down to the lower levels of illumination in the exhibition space.
6. Carefully position the sources of light so that their reflections are not visible in the paintings.
7. Give special attention to the choice of colour to the background hanging wall, so that as far as possible it is not brighter than the picture, and that there is not an excessively strong contrast between it and the edge of the frames. Some compromise may have to be made if the pictures are dark, and reliance is placed upon inter-reflection for lighting the interior, in which case the hanging wall should not be darker than Munsell Value 7 or 6.
8. Consider carefully the choice of artificial sources so as to avoid any colour distortion. Practical experience suggests that this can best be done by a mixed installation of "colour matching fluorescent" tubes and tungsten lamps.
9. If possible arrange the natural and artificial lighting so that they have similar characteristics of distribution and colour appearance.
10. Provide suitable means for the control of sunlight.
11. Ensure that there is adequate access to glazing lamps, fittings and auxiliary gear for regular cleaning and maintenance.

Testing a design

Any design should preferably be tested in the way shown in Fig. 4, where the section has been drawn out accurately to scale, and on it plotted the distribution of daylight on the hanging wall, the angle of cut-off beyond which the glazing and lamps are not visible, and the angle of incidence of the light on to the optimum hanging position, which is generally taken as being about 5 ft. 6 in. above floor level.

The level of direct daylight on the hanging wall can be found using the BRS Daylight Factor protractors in the manner described in BRS Digest No. 80. It should be remembered, however, that the readings given by the protractors are for a horizontal surface, so a correction must be made to arrive at the level on the vertical face of the pictures.

To find the percentage daylight factor for a vertical surface you may use the BRS protractors, but in a

technical section

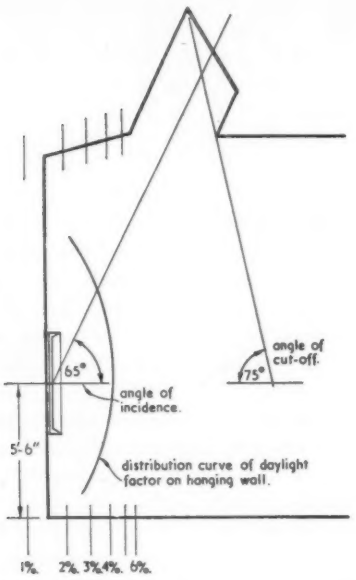


Fig. 4. Typical gallery lighting diagram showing angle of cut off for light sources angle of incidence of light at eye level on the walls and percentage daylight factors on surface used for hanging.

different order. If the wall surface is at right angles to the window wall, you use the protractors designed for vertical glazing (*i.e.*, Nos. 1 and 2), but apply No. 1 *to the plan* and then apply No. 2 *to the section*, being careful always to draw your sight lines to the top of the window and to the top of the highest obstruction. If the wall surface faces the window wall, you must use the protractors for horizontal glazing (*i.e.*, Nos. 3 and 4), applying No. 3 to the plan and then applying No. 4 to the section. These procedures can, perhaps, best be understood if you remember that in both cases you so twist the room round that the surface to be considered is made to lie on a horizontal plane. Having found the direct component, you then proceed to find the indirect component in the usual way and add the two together.

Account should be taken, in calculating the levels of natural illumination, not only of the direct light, but also of the indirect or inter-reflected component. This can be obtained from the nomograms published in the AJ for September 16, 1954, or from the table in Digest No. 80. For each particular section it can be assumed that the level of illumination given by nomogram or table is spread evenly over the hanging wall, to be added to the readings given by the protractors. Or expressed slightly more mathematically:

Direct Component + Indirect Component = Daylight Factor.

One or two detailed points remain to be considered in daylight calculation. First, the BRS protractors and the indirect component nomograms and tables assume normal clear glass, with a transmission factor of 85 per cent. Where some other form of glass is used it is therefore essential to correct for this. The manufacturer of the type of glass should be able to supply its transmission factor. Another correction which should be made is to allow for dirt upon the glass. Assuming the pollution of a built-up area, and regular cleaning, the figure of 20 per cent. loss of light through dirt should be a reasonable figure to use for this purpose.

The angle of cut-off from both the glazing and the lamps should be plotted. This angle should be as steep as possible, preferably at an angle of not less than about 70 deg. to 80 deg. This will be a useful check on the way in which the scheme keeps the light sources well screened from view. At the same time plotting the angle of incidence of light from the sources on to the pictures at the optimum level of 5 ft. 6 in. above floor level can be helpful in checking that reflections are likely to be avoided.

A summary of the steps taken in the daylight calculation would be:

(*i*) Draw out the section accurately to scale;

(*ii*) read off the direct component of Daylight Factor, using the BRS protractors, at a number of equally spaced points on the hanging wall;

(*iii*) correct the direct component, bearing in mind that a vertical, rather than a horizontal surface is being examined, by dividing the reading by the tangent of the angle of incidence;

(*iv*) find the indirect component from tables or nomograms and add it to the direct to give the Daylight Factor;

(*v*) allow for loss of light through glazing if other than clear glass is used;

(*vi*) allow for loss of light through dirt on the glass, a typical adjustment being to reduce the Daylight Factor by 20 per cent.;

(*vii*) plot the Daylight Factors on the section to produce a curve, which should preferably be plotted on a logarithmic scale;

(*viii*) check angles of cut-off to see that sources are adequately screened, and angle of incidence to be sure that reflections are minimized.

Editors' note: Next week we are publishing a working detail of the new lighting in the Birmingham Art Gallery. This shows the application to an existing building of the principles described in this article.

building illustrated

Hospital extension, Nuffield House, Musgrave Park Hospital, Belfast

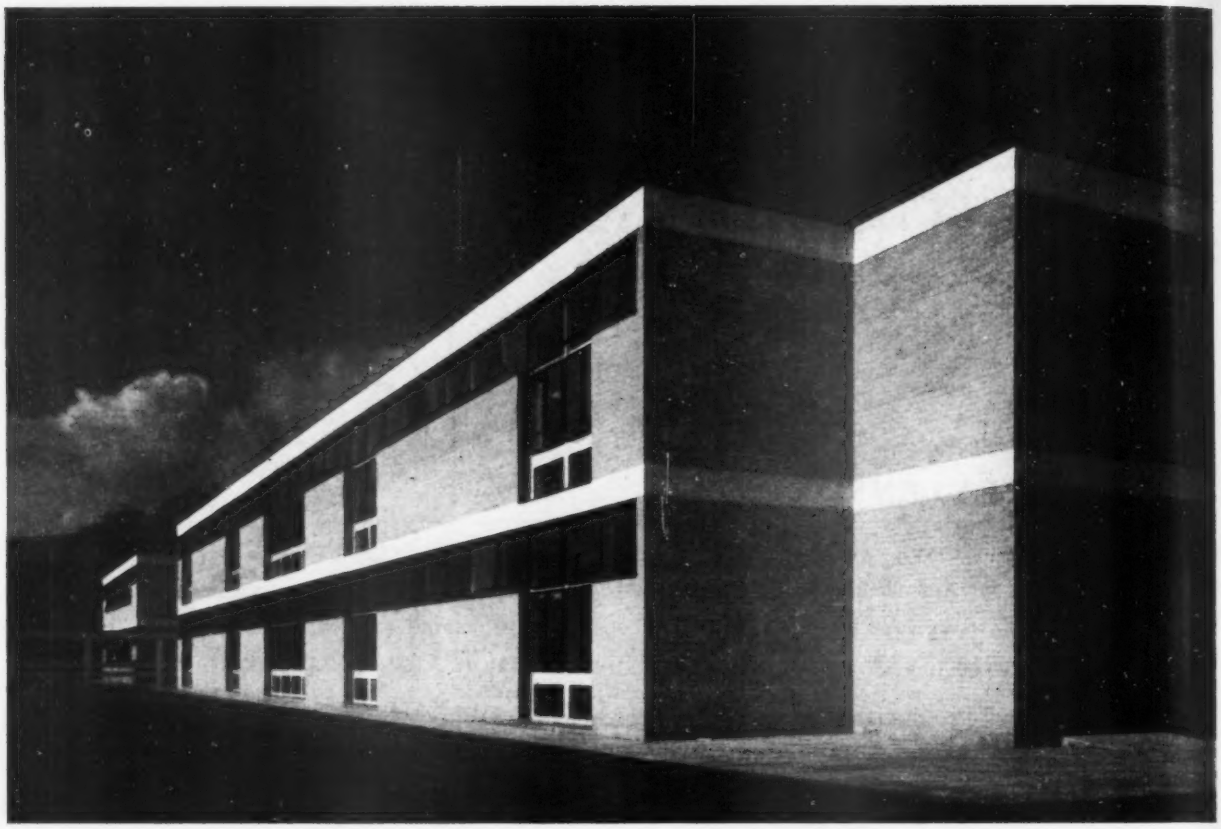
HOSPITAL EXTENSION

NUFFIELD HOUSE, MUSGRAVE PARK HOSPITAL, BELFAST; designed by R. LLEWELYN DAVIES, Director, Nuffield Foundation Division for Architectural Studies; deputy architect JOHN WEEKS; chief assistant WALTER GODDARD; executive architects SAMUEL STEVENSON and SONS; consultants (structural) OVE ARUP and PARTNERS; (heating electrical and mechanical) J. R. W. MURLAND; quantity surveyors W. H. STEPHENS and SONS

In 1950 the Nuffield Provincial Hospital Trust's research team, the Investigation into the Functions and Design of Hospitals, was invited by the Northern Ireland Hospitals Authority to design an extension to Musgrave Park Hospital, Belfast. The new building (the design of which was completed in 1953) is the second of two research projects undertaken by the team, the work of which was described in detail in its report published in 1955. In 1954 the research team, with the title " Division for Architectural Studies " became part of the Nuffield Foundation.

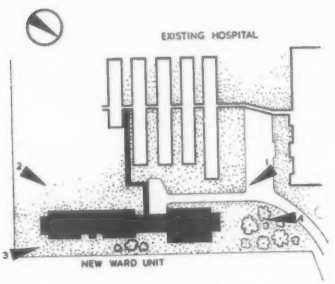
Viewpoint 1. *From the north-west. The wards are beyond the glazed corridor link which joins Nuffield House to the hospital.*







building illustrated



Site plan with photographic viewpoints

Viewpoint 2 (*opposite page, top*). *From the south-west. The external walls are of white concrete bricks and the edges of the floor and roof slabs are exposed on the face of the building. All windows are fully recessed so that there are no internal sills to be cleaned. The opening portions of the windows are painted black and the fixed frames very light grey. The upper windows are opened by gearing.*



Viewpoint 3 (*above*). *From the south-east, showing the two projecting nursing units, each with two* 6*-bed and one* 4*-bed wards. The windows extend down to floor level at the centres of each ward and the heads of beds are behind the solid panels. The squares of paving set into the grass increase the amount of light reflected into the wards from the ground.*

Viewpoint 4 (*opposite page, bottom*). *From the north. In the projecting block is an emergency stair and the door on the ground floor enables anaesthetic gas cylinders to be supplied to the central manifold room at a point where the noise will not disturb patients.*

APPRAISAL: The profession may be slightly less familiar with the Nuffield development work on hospitals, than with the parallel job done by MOE in the educational field. There are probably a number of reasons for this, despite the great importance and value of the work that has been done by Nuffield research team since it was launched with private funds in 1950. Perhaps the most important of these is that despite an immediate and pressing need after the war, it is only now that a major hospital building programme is beginning to emerge. Partly as a result of this, and also because the group is smaller than its equivalent at MOE, the number of development projects carried out has been more modest. This building is, in fact, the second hospital ward to be carried out by the group, the first being at Larkfield Hospital, Greenock. The fact that both these projects are so far removed from the Nuffield headquarters at Regent's Park is doubtless indicative of the difficulty the group had in finding hospital authorities willing to co-operate. It is a pity that both are a bit out of reach for the majority of the profession to visit.

Another facet of this problem is the fact that the group, presumably as a matter of deliberate policy, have chosen to place the findings of their research into one lavishly produced publication,* with *Oeuvre Complète*-Max Bill type cover, rather than to launch a continuous stream of more modest bulletins or digests like MOE and BRS, which can be kept up to date, are cheap and can help to maintain the profession's interest and support for an extended programme of development and research.

All these factors imply that this is one of the few occasions where the AJ has an opportunity to comment upon the work of the group. And due to the background of research and study that lies behind the design of this building, it merits criticism of the highest order, rather than mere lip service being paid to it or for that matter to the development idea, the undoubted success of which has been proved by Nuffield and MOE alike.

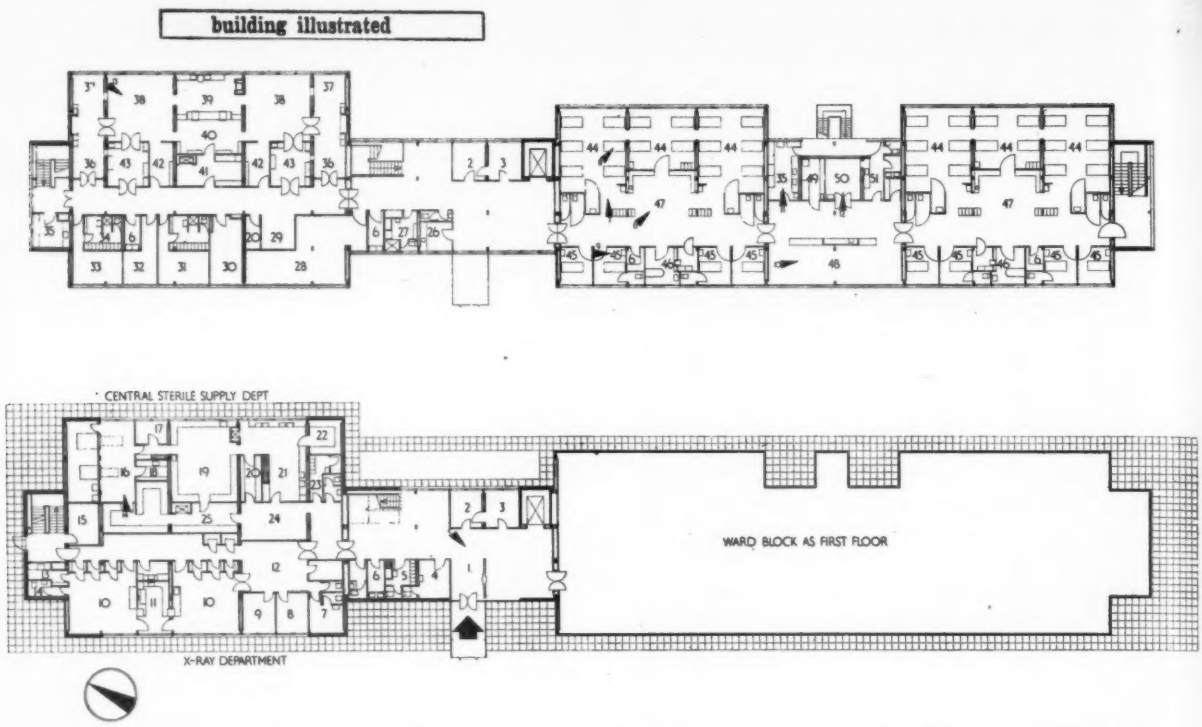
Nuffield House is a two-storey building, consisting of two identical ward units, an X-ray department, a Central Sterile Supply Centre, and a twin operating theatre suite. It has its own entrance, but is connected by a corridor link to the existing hospital, which consists mainly of war-time huts.

The Central Sterile Supply department, the first of its kind in Britain, serves the whole hospital of about 700 beds, preparing all the dressings and equipment for treatment in the wards and all materials for use in the operating theatres, with the exception of surgical instruments. The X-ray department was designed according to local requirements and does not exemplify any Nuffield research findings.

The wards are similarly organized to those at Larkfield. Both are based upon two fundamental ideas, the translation of which into building form is undoubtedly the most significant feature of their design. Firstly, the wards are designed to encourage patients to be out of their beds at a very early stage in their convalescence. To this end w.c.'s and washing facilities are provided at a number of places close to the beds, and there is a large day-space or sitting area provided with easy chairs and TV. Secondly, the design is carefully developed so that the nurses can carry out their work with the minimum of circulation. Kitchen serveries and utility rooms are therefore centrally placed in the wards on each floor. At the same time there are nurses' stations strategically sited in the middle of each unit of 20 beds. In both Larkfield and

Studies in the Functions and Design of Hospitals. OUP. 1955. £3 3s. 0d.

building illustrated



Ground and first floor plans, Nuffield House, showing internal photographic viewpoints. [Scale: $\frac{1}{32}$" = 1' 0"]

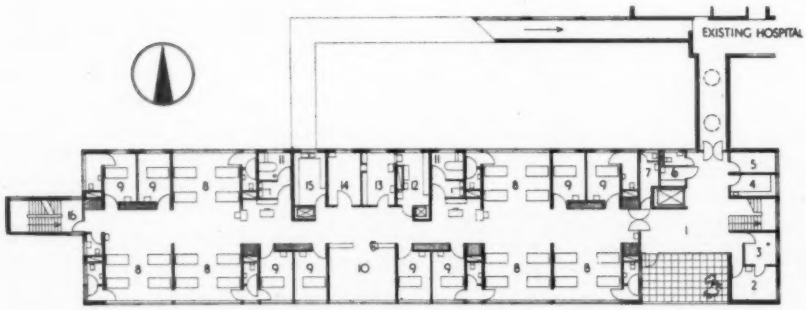
KEY
1. Entrance hall
2. Interviewing
3. Sister
4. Doctors
5. Nurses
6. Cleaner
7. Radiographers
8. Receptionist
9. Radiologist
10. X-ray room
11. Dark room
12. X-ray patients' waiting
13. Barium kitchen
14. Patients' lavatory
15. Central anaesthetic supply
16. Autoclave room
17. Office
18. Solutions
19. Workroom
20. Linen
21. Reception and clean-up
22. Instrument repair
23. Staff
24. Trolley parking
25. Sterile store
26. Laboratory
27. Porters
28. Conference
29. Trolley bay
30. Visitors' changing
31. Surgeons
32. Sister's office
33. Nurses
34. Changing room
35. Kitchen
36. Patients' exit
37. Recovery bay
38. Theatre
39. Sink room
40. Lay-up room
41. Supply room
42. Scrub up
43. Anaesthetic room
44. Wards
45. Single room
46. Patients' bath
47. Nurses' station
48. Dayspace
49. Clean utility
50. Treatment room
51. Dirty utility

Nuffield House, beds are arranged on either side of a centra circulation area in order to further this idea. In Nuffield House, however, by having some wards for six beds instead of four as at Larkfield, and by having patients' w.c.'s mainly internal, it has been possible to have the same length of corridor serving 40 beds instead of 32. A higher proportion of single rooms than is normal in this country has been provided, and was based on actual medical need.

The basis of the design of the operating theatre suite is that as many of the processes as possible, with the exception of the operation itself, are carried on outside the theatres. At the same time the layout is specifically intended to facilitate aseptic techniques, by separation of sterile and non-sterile procedures. Two lifts, one for sterile materials, and the other for the return of "dirty," are carefully sited within this logical pattern, and connect with the central sterile supply department on the floor below.

A reinforced concrete frame has been used, floor and roof slabs being designed so that vertical ducts could be introduced without disturbing the main structure. On the previous experience at Larkfield the group considered that a 5-ft. module was suitable for hospital planning, the main structural bays being 20 ft. by 10 ft., with wide, shallow beams spanning 20 ft. along the length of block with light slabs between spanning in the opposite direction. To avoid any exposed services all main partitions are vertical ducts formed of a double skin with a six inch gap between, and horizontal runs are carried in the ceiling space or in the basement which runs

Struc
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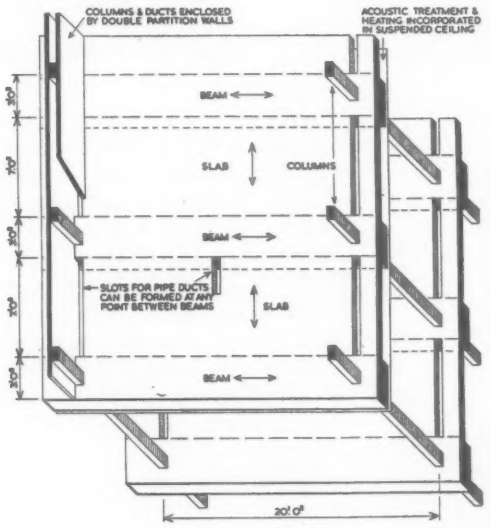


KEY
1. Entrance hall
2. Sisters' room
3. Interview room
4. Laboratory
5. Telephone
6. Cleaner
7. Nurses' lockers
8. Ward
9. Single room
10. Dayspace
11. Patients' bath
12. Dirty utility
13. Clean utility
14. Treatment room
15. Kitchen
16. Emergency stairs

Ground floor plan Larkfield Hospital [Scale: $\frac{1}{32}$" = 1' 0"]

under the whole of the building.

The stanchions are slightly recessed from the external wall, whilst the floor beams are expressed externally, directly carrying the timber windows and brick infilling. By such means there is presented a clear, almost disarmingly simple and yet highly sophisticated statement externally of the structure. At the same time the overall block arrangement and the pattern of solid and void are highly formalised, with the symmetrical repetition of many of the elements involved. It is most interesting to compare this aesthetic, which is in many ways similar to that of the Larkfield block, with the typical product of the MOE group. The schools they have designed are totally different in character, the aesthetic almost visibly growing out of the new educational ideas and new structural techniques. Any formalism which occurs comes from purely internal spatial relationships; this can, for instance be clearly seen if the plan of the central hall block of Amersham (AJ, August 1, 1957) is examined. In some quarters the external appearance that has resulted has been criticized as higgle-piggle non-architecture. Such design has the merit, however, of being a statement of the utmost clarity of a most carefully worked out solution to the educational requirement, and to the human environmental needs in terms of lighting, colour, acoustics, heating and so on, with many frankly experimental trials of finishes, equipment, etc. The Nuffield group, doing parallel work in another field, are to judge from this building and the one at Greenock, producing architecture of a distinctly different character.



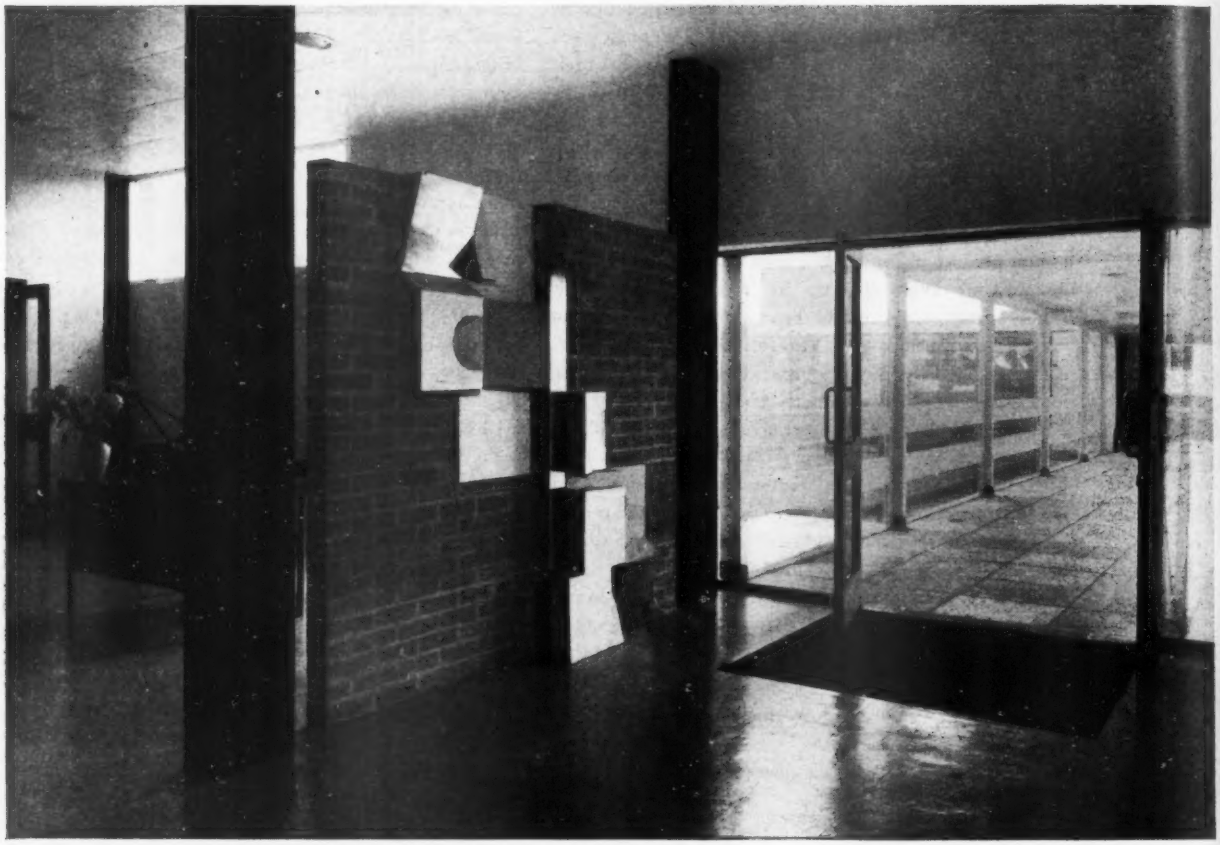
Structural diagram showing placing of ducts

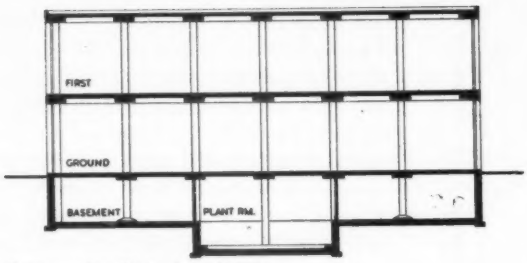
One can, it is true, examine the plan and the way in which it is generated from these cardinal principles of hospital design already described, such as the nurses' stations at the focal points, or the clear functional pattern of the operating theatres. On the other hand one can examine the exterior design and see what amounts to a highly developed, almost abstract pattern. One can, when studying the plan in conjunction with the elevations clearly see the problem created, for instance, in having both single bed wards and sanitary accommodation on the west side of the building, and the skill with which this problem has been overcome. Has it been justified, however, to run this same type of treatment all round the building? The bites out of the windows at each end of the fenestration to the west side of the operating suite seem, for example, to bear no relationship to what lies behind. Again, a somewhat similar pattern has been used on both sides of the building, the one lighting rooms 10 ft. deep with corridor behind, the other wards up to 24 ft. deep, which quite frankly seem underlit. The same sort of query arises with some of the details. Are opening lights about 2 ft. 6 in. above floor level on the first floor, repeating those below, really safe for convalescing patients? (The hospital authorities evidently don't think so because they have now placed bars across at a higher level.)

Something of the same order can be discerned going on in the interior. In the central spine of the ward block the circulation area is defined by patients' lockers and other half-height fittings. Is this form of semi-open planning justifiable in this sort of situation, for instance the dayspace has utility rooms opening off it? In this respect it is interesting to compare this plan with the design at Greenock, the first ward block for which the group were responsible. Here the layout was quite evidently based on carrying the concept of open planning to its fullest conclusion, all the wards other than the rooms for single beds being fully open to the central spine of circulation. It would seem that many of the nuances of the design, of the natural lighting, acoustic treatment, and ventilation were mitigating problems created by this decision, which appears to have been a purely visual one, rather than anything resulting from the brief that the group had developed as a result of their research. In this present building one notes the amount of open planning has been considerably reduced, and that which remains seems on the face of it to be hardly justifiable in meeting the requirements, however desirable architecturally.

To pick up just one more point about the interior, there are the same influences to be seen in the colouring. This has, in the ward block, been restricted to off-white walls and trim dark grey skirtings, light grey linoleum tiles, with the exposed stanchions at the windows and elsewhere picked out in black. The only relief to this is the incidentals of curtains and furniture. The colour scheme can be considered as architecturally a forthright and clear statement of the structure. On the other hand, one cannot help feeling that the opportunity has been missed to produce some degree of variety by colour, less a clinical and more domestic atmosphere in keeping with the planning. This is particularly relevant in the day spaces, where one would have imagined a totally different character of environment, or at the very least some positive change from that of the wards, rather than the same off-white walls. Visually, this is a design which is quite clearly architecture for architects and this can be legitimately defended as a valid objective for the group to aim at. What architect, after all, is going to consider a development project worthy of his study, when it appears quite patently to be non-architecture. They have achieved an exterior of highly organized simplicity, echoed inside, of that special flavour that has a recurring appeal to the puritan English mind, which has in the past preferred Palladianism to Baroque, and the honesty of the arts and crafts movement to the seduction of Art Nouveau. At the same time the elevations show a plasticity in the relationship between solid and void which cannot fail to strike a chord of sympathy in the heart of any Nu-brute.

building illustrated





Cross section [Scale: $\frac{1}{16}$" = 1' 0"]

Viewpoint 5 (above). The ground floor entrance hall. On the extreme left are the doors to the ground floor ward and the receptionist's desk. Between the desk and the entrance is a wall construction by Mary Martin. This was built by the contractor from working drawings and was priced as part of the contract. The bricks used are the same as those used externally and certain areas are faced with stainless steel sheets or white painted plaster. Ceiling heating is used in the building, using a system of suspended perforated aluminium trays with glass silk quilt acoustic absorbent and heat insulation above the heating pipes. Except in the wards, all light fittings are recessed in the ceiling. Floor and ceiling tiles are on a 2-ft. grid.



Viewpoint 6 (left): part of one of the nurses' stations. They are partially screened from the circulation space by blocks of patients' lockers. Behind the station is a 4-bed ward and on either side is a 6-bed ward. The one-bed wards face the nurses' station across the corridor. In addition to the desks and a telephone booth, each nurses' station has a bench with a sink in it for medicine dispensing and the medicine and drug cupboard for the 20-bed unit. A mobile patients' chart rack is kept in the station. (This photograph and those of the treatment room, operating theatre and sterilising room are reproduced by courtesy of he Nursing Mirror.)

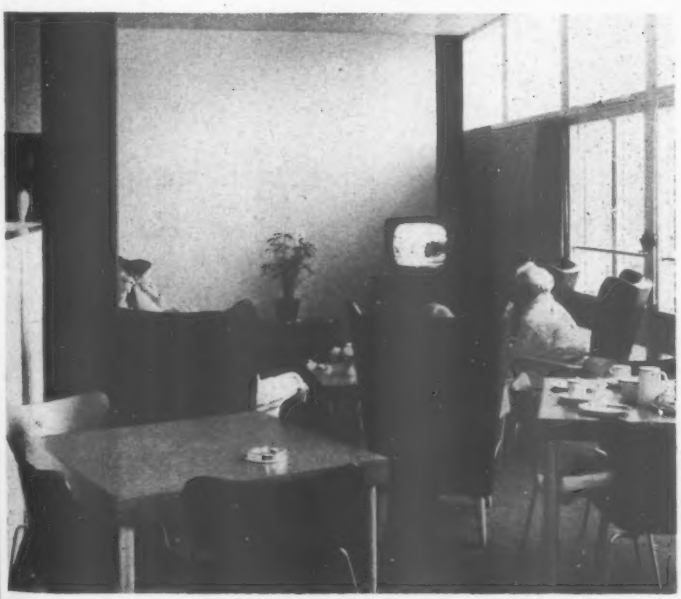


Viewpoint 7 (*left*): *part of a* 6-*bed ward. On the right is a wash basin for the use of surgeons and nurses. All beds and overbed tables are adjustable in height so as to meet the needs of patients at various stages. The patients' washing cubicle and w.c.s are on the left, the washing cubicle opening directly off the ward. (This photograph and that of the day space below are reproduced by courtesy of the* Nursing Times.) *Artificial lighting is from anglepoise fittings at each bed and two large open drums at the centre of the ward, which provide enough light for a nurse to read charts, etc. The brightness of the inner surface of the drums is such that no glare discomfort is experienced by patients, and as they are open top and bottom they collect little dust. The block of switches which each patient has is shown centre left (viewpoint 8). This is normally clipped to a locker but may be put onto the bed for the use of a patient who cannot move his arms. It controls the bed-head light, radio and nurse-call signal. The whole unit can be taken away for disinfection. Centre right (viewpoint 9), a wash-basin, designed by the team, which is used throughout the building. It can be used in rooms where a sink is sometimes necessary but is also suitable for use by patients and staff for washing. The mirror is designed for use both by patients in wheel chairs and standing up.*





Viewpoint 10 (*bottom left*): *one of the day spaces serving* 40 *beds. The easy chair is a standard model but it has been modified to provide a higher back and more lumbar support. They are covered with vynide for easy cleaning. The tables in the foreground are used by up-patients for meals. The day space is screened from the corridor by a* 5 *ft. high bank of cupboards in which is incorporated a sink for the arrangement of flowers, with space for flower trolleys.*





Above (*viewpoint* 11), *a ward kitchen. On the right is a double sink unit for washing and sterilising crockery and cutlery. After washing these are placed in loads small enough to be lifted into racks and put into the sterilising sink. On removal they dry by their latent heat and are then placed, still in racks, in a plate warming cabinet, visible on the left of the photograph.*

building illustrated

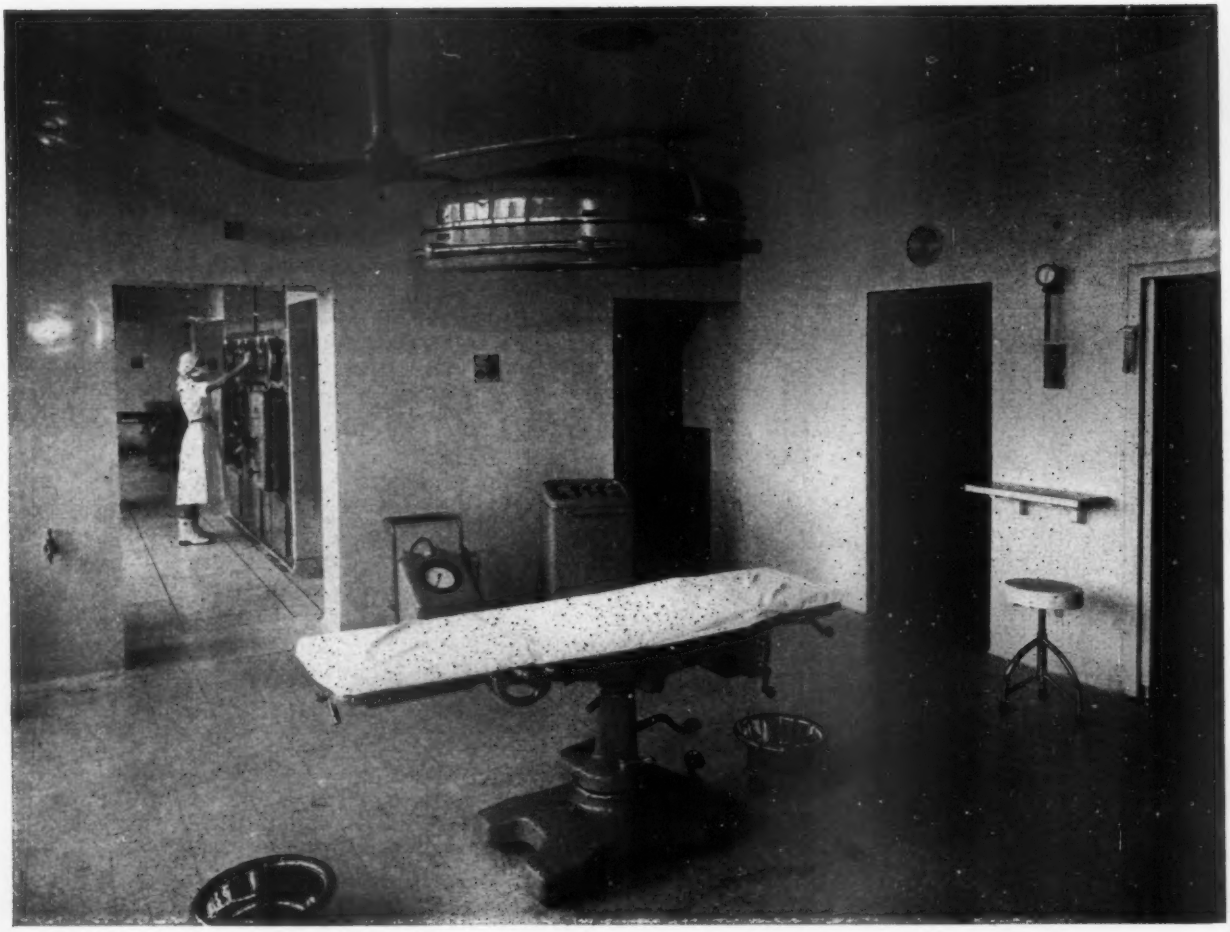




Viewpoint 12 (left): one of the treatment rooms serving each 40-bed unit. This is en suite with the clean utility and dirty utility rooms, with which it communicates through hatches. All patients are brought into this room for treatments, to minimise cross infection. The room is air-conditioned.

Viewpoint 13 (below): one of the operating theatres and, on the left, the loading doors of the autoclaves. The other ends of the autoclaves open into the trolley lay-up room. These autoclaves are used for sterilising instruments used in the theatres; other sterilising equipment being supplied from the central sterile supply department. On the right are doors from the surgeon's scrub-up room and the anaesthetic room and in the centre is the doorway leading from the trolley lay-up room. In the operating suite the ceiling panels are not perforated and the joints between them are sealed. The floor finish is white terrazzo in tiles laid on an earthed screeed. The whole suite is sealed and air-conditioned with a controlled humidity of 65 per cent. The operating table is mobile and is pushed into the anaesthetic room to receive the patient and after surgery is pushed into the exit room.

Viewpoint 14 (left): the sterilising room in the centre 'sterile supply department, which does the sterilising for the whole hospital of about 700 beds. The autoclaves are fully automatic in operation. On the left is one of the hot air ovens used for sterilising syringes and needles. All materials are sent to the wards and theatres in packs, each pack holding the supplies for a single procedure.



analysis

CLIENT'S REQUIREMENTS

An extension to an existing hospital was required to house surgical patients, operating theatres, X-ray department and central sterile supply department. Except in the X-ray department much of the internal organization, staffing and routine procedures were to be worked out in detail by the Nuffield research team in collaboration with the Northern Ireland Hospitals Authority and the Hospital Management Committee.

PLANNING AIMS

The building was designed to demonstrate some of the findings of the research team. The design of the wards was based on studies covering the work of nurses, the provision of ancillary facilities, cross infection in relation to ward planning and organization, the pattern of movement in wards, space required round beds, the influence on planning of early ambulation policies, and ward management. The physical environment, under the headings of natural and artificial lighting, heating, ventilating, noise and colour, was also studied in collaboration with the Building Research Station. The design of the operating threatre suite made use of studies of the size and shape of theatres, natural and artificial lighting, ventilation, equipment, pre-operative and surgical routines, methods of sterilization, and the use of recovery rooms. The central sterile supply department was designed on the basis of American and Continental European experience.

SUMMARY

Ground floor area: 14,885 sq. ft.
Total floor area: 31,037 sq. ft.
Type of contract: RIBA.
Tender date: June, 1954.
Work began: March, 1955.
Work finished: September, 1958.
Final contract price of foundations, superstructure, installations and finishes: £188,235.
Final contract price of external works and ancillary buildings: £8,720.
Total, £196,955.

cost per sq. ft.	s	d
Preliminaries and insurances	10	
Contingencies	3	9¼
Increased costs in labour and materials Photographs, testing and insurance.	7	1
Work below ground floor level	6	2¾
Tanked basement with 4½-in. brick outer skin, ¾-in. asphalt, and 7-in. reinforced concrete to all.		

STRUCTURAL ELEMENTS

	s	d
Frame or load-bearing element	2	11¾
Concrete frame, 20-ft. × 10-ft. bays. 3-ft. × 1-ft. flat beams and 1-ft. × 6-in. columns. This must be read in conjunction with floors.		
External walls	2	1
11-in. cavity walls with concrete facing brick and 4-in. clinker inner skin. Ratio: solid wall / floor area = 0·402 / 1		
Windows	2	8½
Wood windows with softwood main frames and hardwood opening portions. Ratio: windows / floor area = 0·263 / 1		
External doors		3¼
Hardwood main entrance doors, fully glazed. Flush doors elsewhere. Ratio: doors / floor area = 0·040 / 1		
Upper floors	3	10¼
20-ft. × 10-ft. bays, all similar. Superload: 50 lb per sq. ft.		
Staircases		7½
Number of staircases: 4 (2 internal, 2 external). Width: 4 ft. 6 in. Total rise: 11 ft. on three; 22 ft. on one flight.		
Roof construction		6¼
5-in. concrete slab, with 2-in. cork, 3-layer felt and white spar chippings. Area: 15,960 sq. ft.		
Rooflights		1½
19 lights; total area: 274 sq. ft.		
Glazing	1	1
Generally 32-oz. sheet, with obscured Georgian cast glass panels at floor level. A small quantity of polished plate.		
Total of structural elements	14	3½

PARTITIONS AND FITTINGS

	s	d
Internal partitions	1	8½
3-in. clinker block. Area: 3,816 sq. yd.		
Screens		11¾
Glazed screen to front entrance, and small areas around X-ray receptionists.		
Internal doors	2	7
169 single, 23 pairs of double doors.		
Ironmongery		11¾
Aluminium.		
Fittings	6	6
Shelving, mirrors, hardware, cat-ladders, cupboards.		
Total of partitions and fittings	12	9

FINISHES

Floor finishes 6 9¼

Type of finish	*Area in sq. ft.*	*Price per sq. yd.*
Linoleum	21,505	50s. 0d.
Tesselated tile	3,722	36s. 0d.
Terrazzo	2,802	59s. 6d.
Grano	1,213	12s. 0d.

Wall finishes 2 4¼
Plaster generally. Small areas of wall tiling.

analysis

	s	d
Ceiling finishes Combined heating and acoustic panels, except over theatres and X-ray, where panels are not acoustic. The cost is shown below, under heating.		
Roof finishes 3-layer felt and white chippings. Aluminium edging. Area: 15,960 sq. ft.	2	4
Decorations Emulsion paint on walls. Paint on ceilings, and walls of bathrooms, w.c.s, kitchens and utility rooms.	2	3¾
Total of finishes	13	10½

SERVICES

External plumbing 7 lb. lead flashings.			3½
Hot and cold water installation In copper tube.		14	1¾
Sanitary fittings		3	7½
Type of fitting	*No. of each type*		
W.c.s	38		
Basins	70		
Baths	4		
Sinks	46		
B.P. wash	4		
Slop-hoppers	2		
Scrup-up units	2		
Showers	3		
Heating and ventilation Steam supply from main boiler house to calorifier. Hot water is supplied to copper tubing in acoustic ceiling panels. Internal temperatures: wards, 65 deg., theatres, 75 deg. Air change: wards, 5. theatres, 15. U of walls: 0·26. U of roof, 0·18.		23	11¾
Electrical installation		13	10½
Type of point	*No. of each type*		
Ceilng lights	365		
Wall lights	233		
U.v.	12		
5 amp.	40		
15 amp.	87		
Clocks	34		
Lifts Bed lift, 1. Hoists, 2.		2	8¾
Total of services		58	7¾
Drainage Exposed cast iron runs in the basement.		2	4¼
Other elements 4 autoclaves. 2 hot air ovens. 2 sterile water. 3 stills. Sculpture.		1	5¾
Total per sq. ft. of floor area: £188,235 4s. 2d. (net cost excluding external works)			
31,037 sq. ft. (floor area measured inside external walls)		=121	3½

COST COMMENTS

This contract started badly and rambled on. Tender date June 1954, work began March 1955, work finished September 1958, resulting in almost a year's increased costs before the first spit was turned and 4¼ years before the contract was completed. The abnormal length of contract was apparently due to the bankruptcy of the first contractor. In any event, it cost the client £10,992 in increased costs.

The total cost per sq. ft. of extension, 121s. 3½d., appears expensive. The analysis is based upon final cost and in studying the cost distribution, contingencies and increased costs can fairly be deducted from the total. Of the resultant cost of 110s. 5¼d. per sq. ft. the cost of services at 58s. 7¾d. represents 53 per cent.

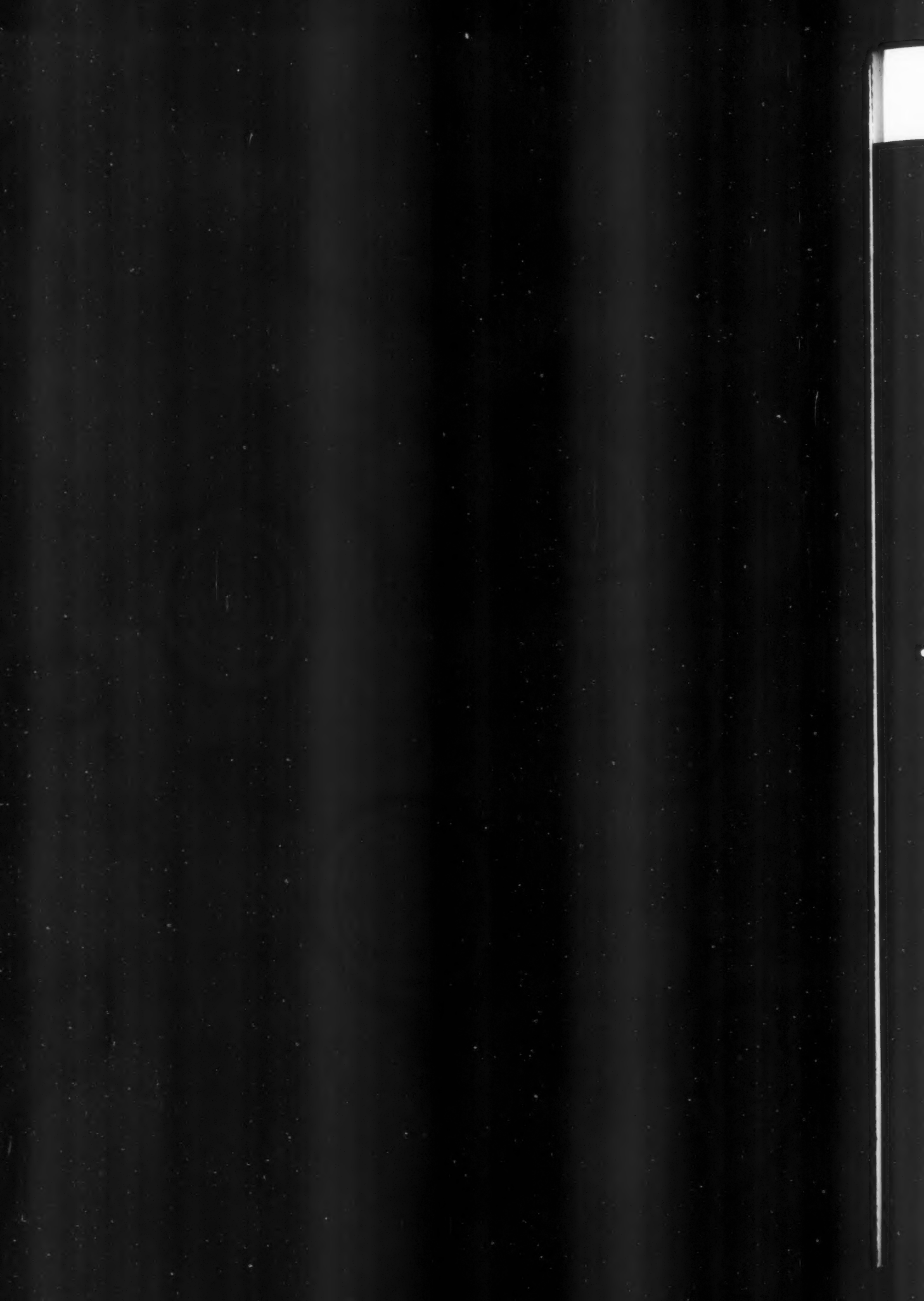
The heating and ventilation, at 23s. 11¾d. per sq. ft. represents an investment of £37,212. This includes the cost of a suspended acoustic ceiling but not that of boilers, as the main source of heat is tapped from the existing buildings. The use of a number of calorifiers may have some effect on the hot and cold water installation, where £21,952 has been spent to meet clients' requirements. The electrical installation accounts for a further £21,531.

In contrast to this heavy outlay on specialist services the cost of the remainder of the building is most reasonable. Structural costs have been kept almost to a minimum, with a cheap *in-situ* concrete frame, external walling at a unit cost of 5s. 2¼d. per sq. ft. and timber windows at a unit cost of 10s. 3½d. per sq. ft. The cost of the 5-in. concrete roof slab looks a little suspect at 6¾d. per sq. ft. of floor area, which is equivalent to a unit cost of 1s. 1d. per sq. ft. As the cost of formwork alone would amount to approximately 1s. 10d. per sq. ft. it would appear that the "frame or load-bearing element" must be carrying part of this cost. Internal partitions are mainly cheap, conventional breeze and plaster, the cost of decorations appears to include nothing fanciful and the roof has the cheapest of coverings.

It is a sobering thought that however much effort the architect and quantity surveyor put into cost planning, over half the ultimate cost remained outside their control, in the hands of specialists.

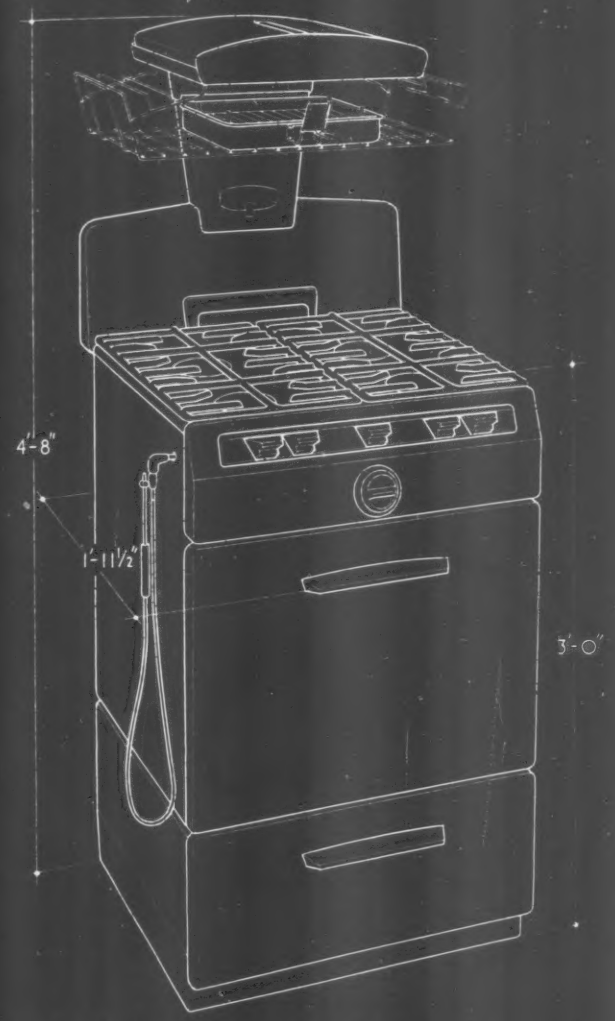
CONTRACTORS

Clerks of works: D. H. Johnston, W. Hagan. *General contractor,* William Logan and Sons Ltd. *Sub-contractors: Electrical installation:* A & C Electric Ltd. *Blinds:* Anderson, James, Ltd. *Terrazzo:* Apuana Marble Industries Ltd. *Piped anaesthetics:* British Oxygen Gases Ltd. *Plumbing installation:* Wm. Coates & Son Ltd. *Plastic domelights:* William J. Cox Ltd. *Metal windows:* Crittall-McKinney Metal Window Co. Ltd. *X-ray apparatus:* Dent & Hellyer Ltd. *Lifts:* Newton Victor Ltd. Evans Lifts Ltd. *Tables, chairs:* Finmar Ltd. *Heating installation:* Frenger Ceilings Ltd. *Signalling system:* Gent & Co. Ltd. *Paints:* Hadfields (Merton) Ltd. Montgomerie Stobo & Co. Ltd. *Clay tiling:* W. D. Henderson Ltd. *Easy chairs:* H. K. Furniture Ltd. Tecta Ltd. *Developing tanks:* Kodak Ltd. *Hot air ovens:* Laboratory Thermal Equipment Ltd. *Autoclaves:* Manlove Alliott & Co. Ltd. *Air conditioning:* Miles-Ashanco Engineering Co. Ltd. *Light fittings:* The Merchant Adventurers Ltd. Frederick Thomas & Co. Ltd. *Linoleum flooring, tanking and roofing:* Neuchatel Asphalte Co. Ltd. *Facing bricks:* The Northern Brick Co. Ltd. *Bedside lockers:* Remploy Ltd. *Cubicle curtain track:* Roanid Ltd. *Ironmongery:* Alfred G. Roberts Ltd. *Kuester autoclaves:* Sierex Ltd. *Window curtain tracks:* Silent Gliss Ltd. *Sanitary fittings:* Stitsons Sanitary Fittings Ltd. *Sterilising Sinks:* Stott, James & Co. Ltd. *Bedpan washers:* Sumerling & Co. Ltd. *Anglepoise lamps:* Terry, Herbert & Sons Ltd. *Beds, overbed tables:* S. B. Whitfield & Co. Ltd.

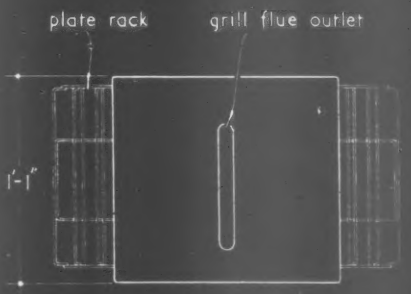


COOKING | GAS

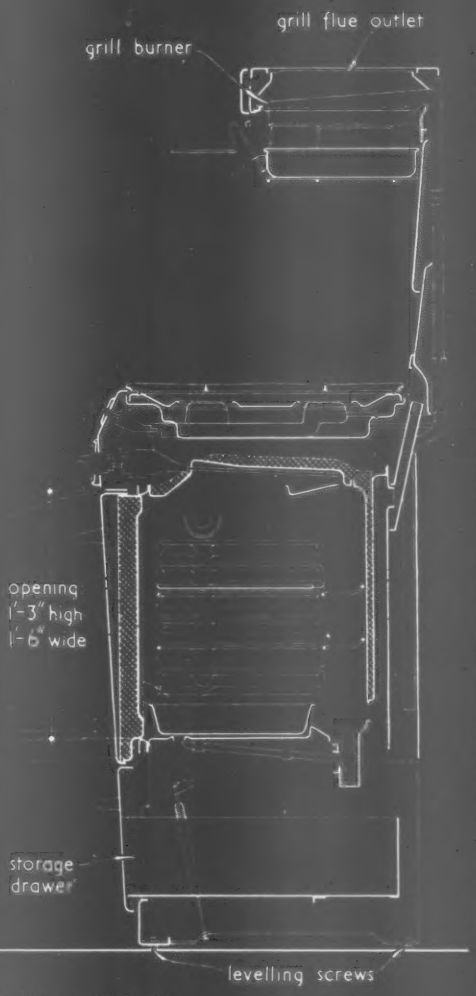
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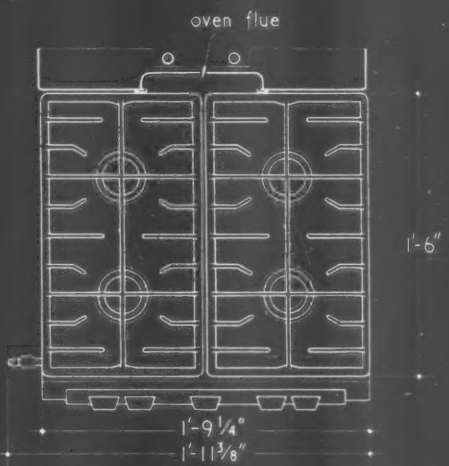
PERSPECTIVE SKETCH OF COOKER.



PLAN OF GRILL.



SECTION THROUGH COOKER.



PLAN OF HOTPLATE.

·PRINCE· GAS COOKER. Manufacturer : Parkinson Cowan Appliances Limited.

31.C4 ·PRINCE· GAS COOKER

This Sheet describes the Prince gas cooker. The drawings on the face show the general appearance, a vertical section through the cooker and plans of the hotplate and high-level grill.

Construction

High-level grill and plate rack: The high-level grill is a fixed unit with a single burner. All grill components (top cover, grill cover, frets, cast-iron burner) are easily removed for cleaning and servicing. The open-wire plate rack carries the grill pan and provides six plate positions, each of which takes two plates. Both upper and lower splashplates are readily removed for cleaning or servicing.

Hotplate: The heads of the four burners have slotted ports and are pressure die-cast in aluminium alloy. A pressed steel hotplate tray carries the reversible and interchangeable pan supports which cover the whole hotplate area, so that pans can glide over them without tipping. The hotplate tray is reversible, and beneath it a hotplate well completely covers all tap bodies, governor, thermostat and pipework, and is removable for servicing.

Oven: The cooking space of the oven is 1 ft. 4 in. high by 1 ft. 6 in. wide by 1 ft. 2¼ in. deep. The oven has embossed sides and a single back burner. The chromium-plated steel safety shelves cannot be pulled out accidentally or replaced incorrectly.

Storage drawer: The inside dimensions of the storage drawer are 4¾ in. high (headroom 6 in.), 1 ft. 4¼ in. deep and 1 ft. 5½ in. wide. It is sheet steel, runs on nylon wheels and is removable.

Fittings

Tap controls: These are spring-loaded safety taps with brass bodies and plastic handles.

Ajusto thermostat: The Ajusto rod-type thermostat combines the oven tap and heat control. The settings are ¼ to 12 with a " low " setting which allows only gas passing through the thermostat bypass to reach the oven: this gives a minimum heat well below the average ¼ setting.

Ignition: The four boiling burners are self-lighting, the ignition being provided through flash tubes radiating from a single central pilot with tap control. A gas torch, included in the price of the cooker, is used for lighting the grill and oven. A flash tube carries the ignition from a lighting port at the front of the oven to the centre of the burner.

Aeration: Aeration to the grill burner is by means of an adjustable shutter with locking device and to the boiling burners by aeration screws and locknuts in the burner throats. For the oven no adjustment is necessary.

Governor: The cooker is fitted with a ½-in. Parkinson Cowan 150 DA buttonless governor in die-cast aluminium.

Gas connection: This is a ½-in. B.S.P. male connection at the left-hand side of the back of the cooker. Provision is made for recess fitting.

Gas Rating

All burners (grill, four boiling burners, oven burner) are rated at 12,000 B.t.u./hr. (24 cu. ft./hr. of 500 c.v. gas).

Fixing

The position chosen for the cooker should be well lighted and free from draughts. The cooker should be fitted flush against the wall and the minimum distance between the grill head and any overhead projection must be 1 ft. 8 in. unless special precautions are taken to prevent overheating.

Gas supply: The height to the centre line of the gas inlet is 2 ft. 8½ in.

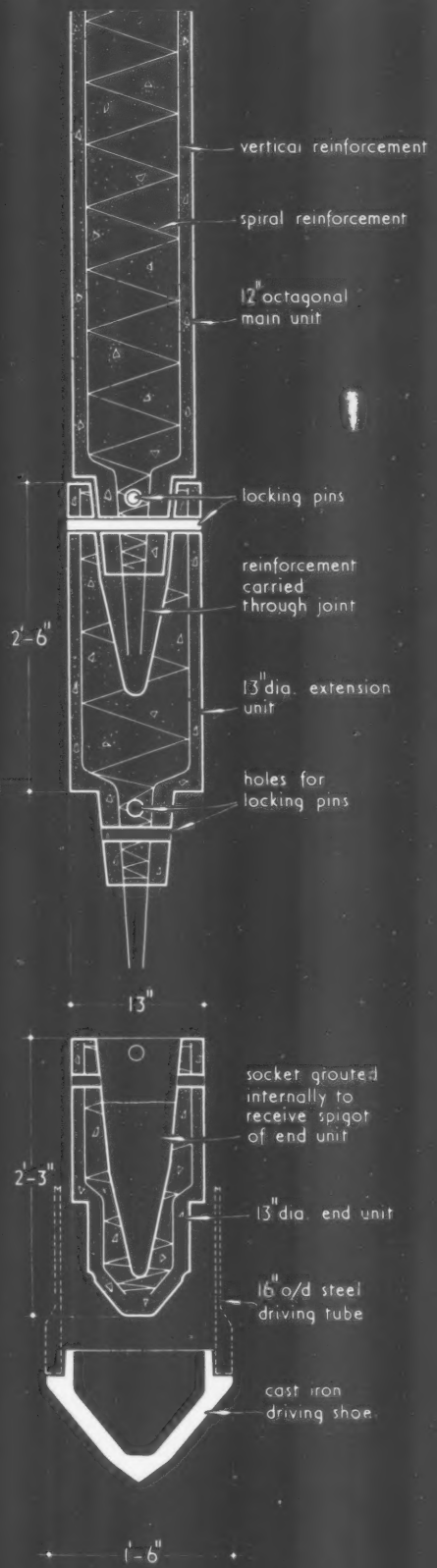
Finish

The cooker is available in white or cream vitreous enamel with black pan rests. The fascia panel may be supplied in white, cream, red, green or blue vitreous enamel with plastic door and drawer handles to match. The coloured components are easily changed, the fascia panel being held by readily accessible screws and the handles by screws removable from the front.

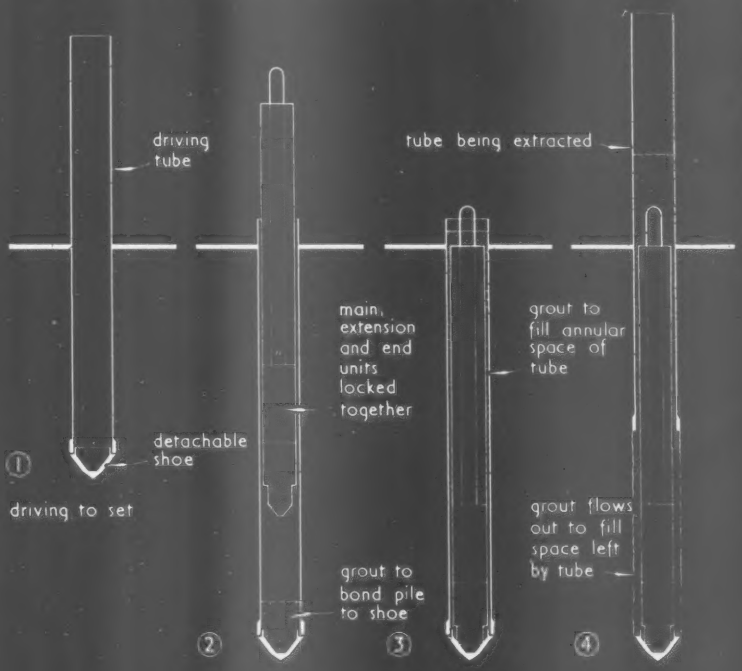
Compiled from information supplied by:

Parkinson Cowan Appliances Limited (Gas Division)
Head Office: Terminal House, Grosvenor Gardens London, S.W.1.
Telephone: Sloane 0111 (4 lines)
Telegrams: Disc, Sowest, London.
Works: Stechford, Birmingham 33.
Telephone: Stechford 4000.
Telegrams: Appliances, Birmingham

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SECTION THROUGH TYPICAL PILE SHOWING FORMATION OF JOINTS



DIAGRAMS SHOWING STAGES OF INSERTION OF PILE

vertical steel reinforcement	concrete mix and stress		
	1 : 2 : 4 760 lb/sq in.	1 : 1½ : 3 950 lb/sq in.	1 : 1 : 2 1140 lb/sq in.
4 — ½" bars	46	57	67
6 — ½" "	50	50	70
8 — ½" "	53	63	72
4 — ⅝" bars	50	60	70
6 — ⅝" "	55	65	75
8 — ⅝" "	59	69	79
4 — ¾" bars	54	64	74
6 — ¾" "	61	71	81
8 — ¾" "	68	78	87
4 — ⅞" bars	59	69	79
6 — ⅞" "	68	78	88
8 — ⅞" "	78	87	97
4 — 1" bars	65	74	84
6 — 1" "	77	87	96
8 — 1" "	88	98	108

TABLE SHOWING MAXIMUM WORKING LOADS IN TONS

POSITIVE PILING SYSTEM. Manufacturer: Robert M. Douglas (Contractors) Limited

26.E2 ·POSITIVE· PILING SYSTEM

This Sheet describes the Positive piling system whereby precast reinforced piles of the exact length required are placed in position without being driven.

Method of Operation

The system consists of driving a steel tube, closed at the lower end by a detachable concrete or cast-iron shoe, into the ground until the desired "set" is obtained. The length from the shoe to the underside of the pile cap is the length of the pile required, whether the pile cap is above or below the existing ground level. The pile, having been assembled, is suspended above the tube. A small quantity of rich grout is poured into the tube to bond the pile to the shoe. The pile is then lowered into position until it comes to rest on the shoe. A further quantity of grout is then poured into the tube and the extraction of the latter begun: as the tube is withdrawn, the grout takes its place, sufficient of the latter being used to fill completely the annular space left by the tube. The grout assists materially in building up frictional resistance and provides support for any length of pile which may be in poor ground. The diagrams on the face of the Sheet show the four stages in the operation of placing the piles.

Design and Construction of Pile

The completed pile consists of the main pile unit, extension unit(s) and an end unit.

Main pile unit: This is of octagonal section and is cast either on or off the site to the length required by site conditions; this length should be somewhat shorter than the anticipated pile length to allow for variations in the level of the bearing stratum. The reinforcing rods are left projecting from the pile head for bonding with the superstructure.

Extension unit: Extension units are of circular cross-section and are normally available from stock. Any number of extension units can be added to the main pile to make up the required length.

End unit: These are shaped to fit into the pile shoe, and cast in a selection of lengths to give, with the main pile and extension units, the final required length.

The joints, which are thus all situated in the toe of the pile, are of the spigot and socket type. The spigot is a truncated cone with holes for locking pins cast into it. Corresponding holes are cast into the walls of the socket and when the spigot is inserted the holes register with one another and steel locking pins are driven through them to form a rigid connection. The joints are grouted internally before fitting and externally during the assembly of the pile. When the pile is in position the joints are in compression which locks the units positively together.

As the piles are assembled and examined before being placed in position and are not subject to driving stresses, their final condition can be guaranteed. Their design is simple as it has only to cover the requirements of the final loading and wastage of materials is avoided. In addition, there is no waste from stripping back, as the pile heads are placed at the correct level with the reinforcement projecting.

Sizes

The main pile unit is 12 in. across the octagonal section (sectional area 120 sq. in.). Extension units are 2 ft. 6 in. long and end units can be 2 ft. 3 in., 2 ft. 9 in., 3 ft. 3 in. and 3 ft. 9 in. Piles can be assembled up to almost any length: they have been made up to 120 ft. Where lengths in excess of the capacity of the pile frame are required, coupled tubes are used to obtain the necessary lengths.

Loading

In the design of the pile, the value of the grout is not taken into account: the precast unit only is considered as loadbearing. The piles are ready to carry their load as soon as they have been placed in position. The table on the face of the Sheet gives the loadings for varying designs of reinforcement and concrete mix, the loadings being in accordance with B.S. Code of Practice CP 114 : 1957.

Details of loading tests carried out on the joints are obtainable from the manufacturer.

Site Conditions

The system is suitable for use on any site where there is over 55 ft. headroom but is particularly appropriate where ground space is restricted, as all the units can be precast before delivery. If necessary, the piles can be cast in sulphate-resisting cement or treated in any other way to overcome corrosive ground conditions. The piles are not affected by water-bearing strata, shifting sands, subterranean streams, etc. The size of the pile cannot be reduced by "waisting" and there is no green concrete to be washed away or prevented from setting properly.

Installation

Installation is carried out by the manufacturer, using a totally power-controlled plant of light construction. It is universal, raking, rotating and travelling and all controls are grouped on one central platform. The tubes are driven by diesel hammers of the impact-atomisation type and withdrawn by hydraulic extractors fitted to the base of the mast. Casting of the main piles and extension units can be carried out on or off the site, or the latter can be supplied from stock in most cases if required.

Installation is rapid, as the pile is placed to the exact length required in one operation and no stripping back is required. Groups of piles can be placed in rotation, and work begun on pile caps and foundation beams while further piling operations continue elsewhere.

Further Information

The manufacturer will carry out complete site surveys and field and laboratory tests in order to obtain the information required for the design of foundations. Layouts and reference drawings are made available for all contracts undertaken and copies of full records can be supplied on completion of the work.

In addition to making and driving the piles, the manufacturer will undertake other constructional work such as pile caps, beams, slabs and foundation works generally: when required advice and assistance can also be given in the design of these structures.

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Robert M. Douglas (Contractors) Limited.

Address: 395, George Road, Erdington, Birmingham, 23.
Telephone: Birchfields 5261.

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working detail

CANOPY: HOSPITAL IN PHILADELPHIA, PENNSYLVANIA

Vincent G. Kling, architect (material supplied by W. H. Roberts.)



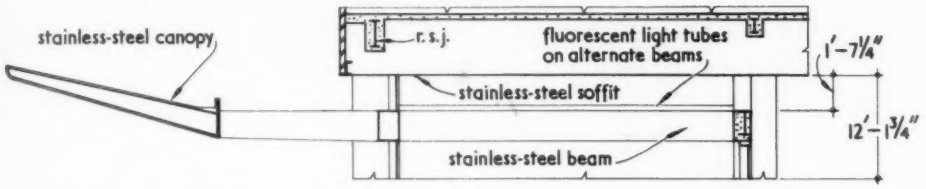
This deep canopy, with open light well at the wall face, has a form reminiscent of timber, but is in fact of stainless steel, the main rafters being formed of box beams 1 ft. 6 in. deep and 3 in. wide.

working detail

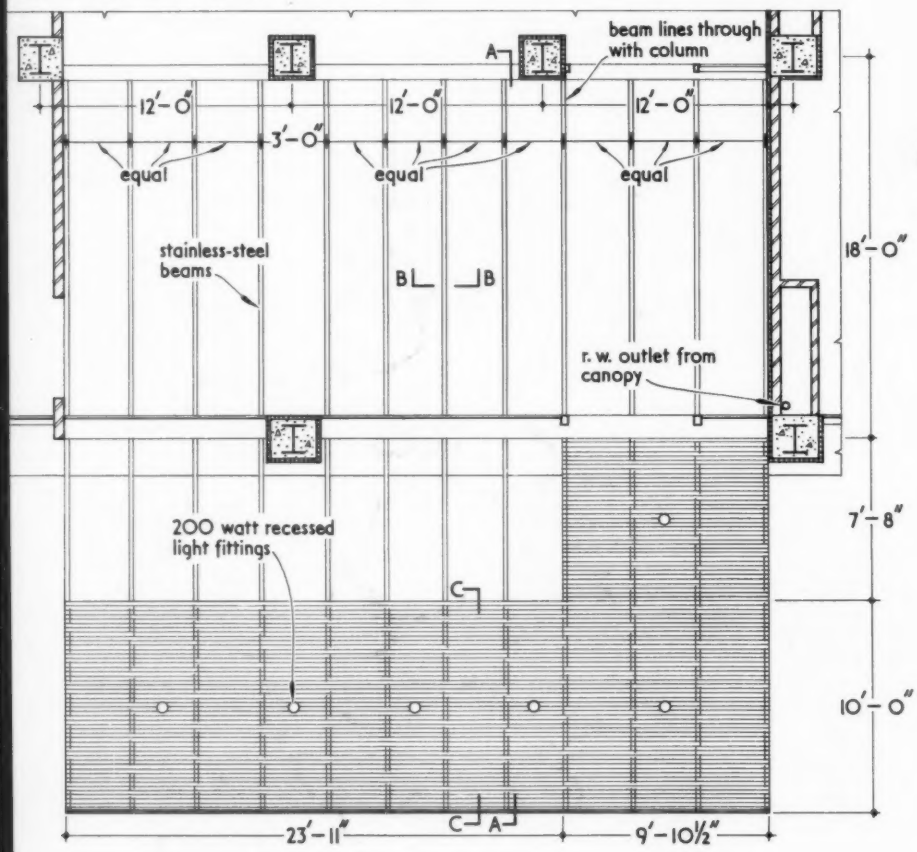
COVERED WAYS AND CANOPIES: 29

CANOPY: HOSPITAL IN PHILADELPHIA, PENNSYLVANIA

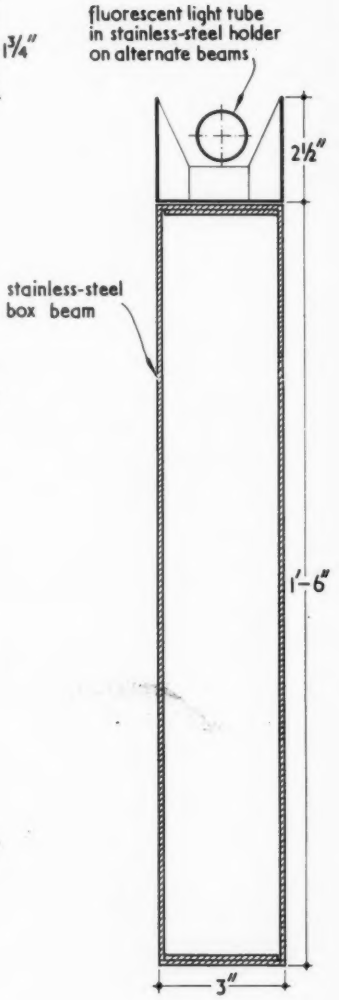
Vincent G. Kling, architect (material supplied by W. H. Roberts.)



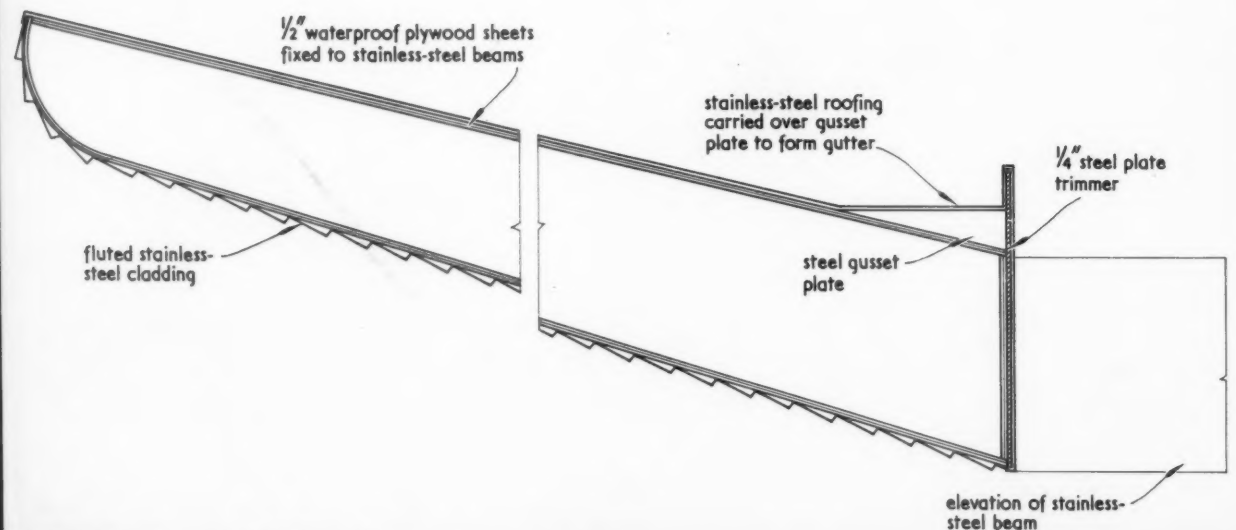
SECTION A – A. scale ⅛" = 1' – 0"



REFLECTED PLAN. scale ⅛" = 1' – 0"



SECTION B – B. scale ¼ full size



SECTION C – C. scale 1" = 1' – 0"



Architects: Howard V. Lobb & Partners Designer: James Gardner, O.B.E., R.D.I

U.K. Government Pavilion
BRUSSELS EXHIBITION
Electrical Services and Lighting
TROUGHTON & YOUNG
Knightsbridge, London, S.W.1 and at Liverpool



Architects: T. P. Bennett & Son. Contractors: Taylor Woodrow Construction Ltd.

Over 5,000 sq. yds. of Marleyflex floor tiles were used on all 6 floors of the new Western House building for the Taylor Woodrow Group.

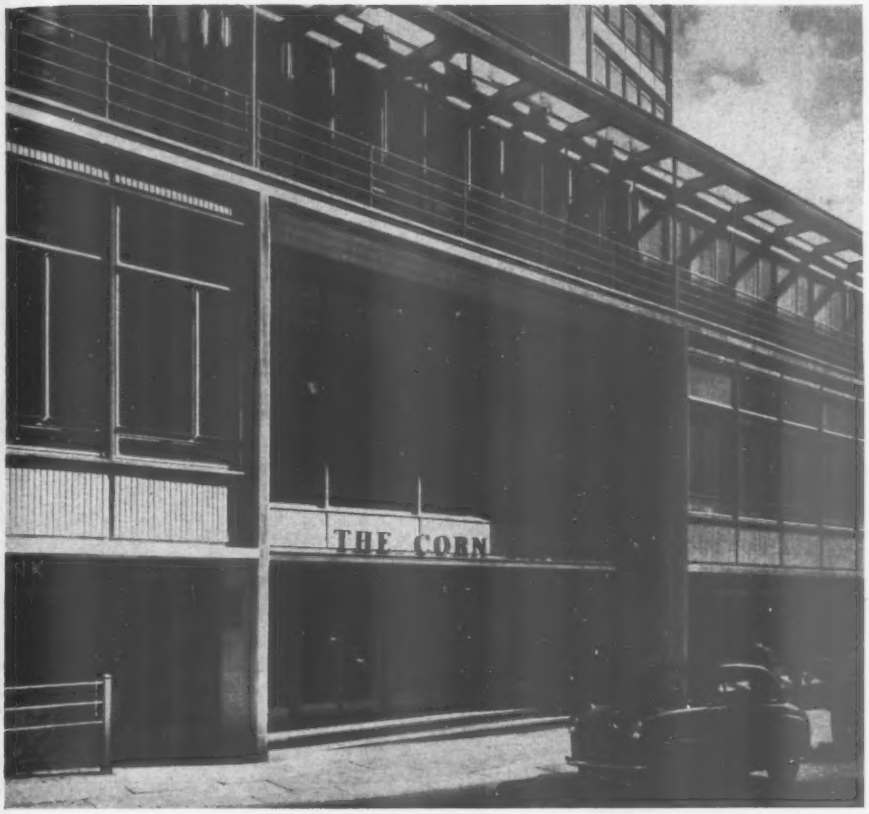


F/9/1

MARLEY

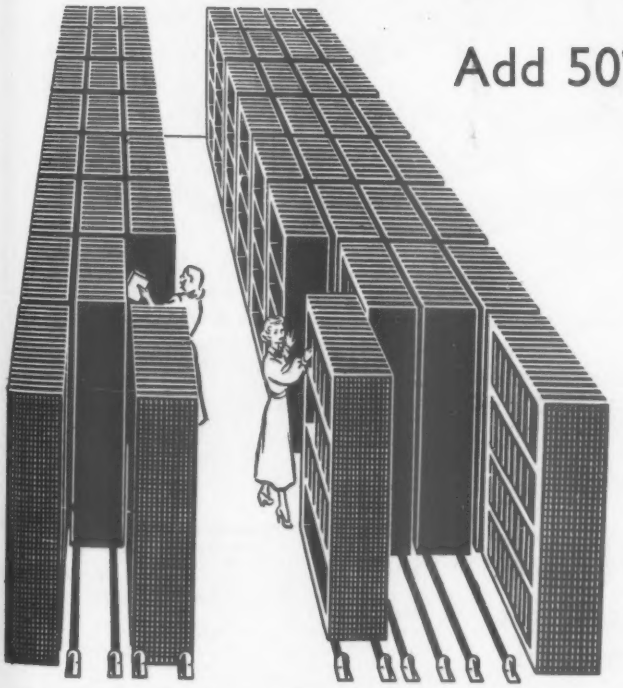
SEVENOAKS · KENT · SEVENOAKS 55255 · LONDON SHOWROOMS: 251 TOTTENHAM COURT ROAD, W.1

THE REBUILT CORN EXCHANGE IN LIVERPOOL



Liverpool's new Corn Exchange, designed by H. Hinchcliffe Davies, was opened last month, on the site of the old Corn Exchange which was completely destroyed in an air raid in May 1941. The new building contains the Spot Market used for trading in grain, and news room for use of members, as well as a certain number of offices for letting. It is a reinforced concrete framed building. The picture, shows one of the three entrances to the building, and the pattern of windows and spandrel walls which covers the two main elevations. The building is faced externally with Portland stone, and spandrels between windows are faced with grey-green faience. General contractors, Tysons Ltd.

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Announcements

PROFESSIONAL

F. W. Hammond has now moved to "Carramore," Portsmouth Road, St. Catherine's, Guildford, Surrey (telephone Guildford 68359).

John F. Phillips, DIP. ARCH. (BIRM.), A.R.I.B.A., has commenced practice at his new address of 324a, Birmingham Road, Walsall (telephone Arboretum 55329) where he will be pleased to receive trade catalogues.

Brett, Boyd and Bosanquet F./A./A.R.I.B.A., now practice in association instead of in partnership. Lionel Brett's offices will remain at Watlington Park, Oxford (telephone Watlington 140); Kenneth Boyd's at 189, Regent Street, London, W.1 (telephone Regent 5489); and Peter Bosanquet's at 60 St. John Street, Oxford (telephone Oxford 59666).

On April 20 B. H. Rossiter, B.ARCH (L'POOL), M.C.D., A.R.I.B.A., A.M.T.P.I., will be taking up an appointment as Senior Group Planning Officer (Development Control), City of Coventry Architectural and Planning Department, Bull Yard, off Warwick Row, Coventry. From that date onwards he would like all his correspondence sent to the above address.

Natusch & Manning, Chartered Architects, of Hill Top, Park Road, Bridport, Dorset, have moved their office to 24, West Street, Bridport (telephone Bridport 2804).

Walter F. Price, A.R.I.B.A., has opened an office at 23, Beaumont Street, Oxford, and will be pleased to receive trade literature.

TRADE

Maurice S. Brewer has been appointed Sales Manager for Szerelmey Ltd., London. S.E.16.

A. T. Mayne, A.R.I.B.A., has been appointed general manager in the Middle East for Taylor Woodrow (Building Exports) Ltd.

W. L. Fletcher has been appointed a director of Dorman, Long & Co. Ltd. and Dorman Long (Steel) Ltd. Mr. Fletcher has been a special director of both companies since 1956 and is managing director of Tees Side Bridge & Engineering Works Ltd. E. N. Highton and G. Foster, who have been officials for many years are now special directors of Dorman, Long & Co. Ltd. and Dorman Long (Steel) Ltd. Mr. Highton is general sales manager of Dorman Long (Steel) Ltd., and Mr. Foster supervises the rolling mills of the company.

Panelec (Great Britain) Ltd. have decided that their activities will be integrated with those of the parent company, British Insulated Callender's Cables Ltd. as from March 30, 1959.

F. Hills & Sons Ltd. of Stockton-on-Tees now have an extra representative for Essex and Kent. He is D. Phillips, 6, Witham Gardens, West Horndon, Brentwood, Essex.

F. C. Boys is now Commercial Assistant to the Product Manager of the Electro-Acoustics Department of Philips Electrical Ltd.

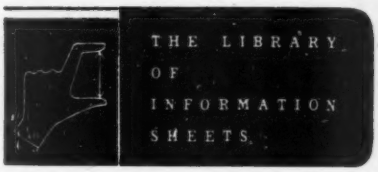
CAS (Industrial Developments) Ltd. have appointed A. H. Horn and B. D. Castle to the board, they have also become Directors of CAS (Contractors) Ltd., and CAS (Domestic Developments) Ltd. D. H. Holmes, General Manager of CAS (Contractors) Ltd. has also been elected to the board of that Company. C. A. Samuels remains Chairman and Managing Director of all three companies.

J. G. Marsden has joined Anti-Dust Services Ltd. as General Sales Manager in charge of U.K. Sales.

The Croft Granite, Brick & Concrete Co. Ltd., of Croft, near Leicester, have appointed W. K. Mansfield as their Technical Representative in the Northern Counties. Mr. Mansfield will be operating from Main Street, Cayton, near Scarborough.

The Central Sales Office of Hall Engineering Ltd. has been moved to 60, Rochester Row, S.W.1 (telephone Victoria 5631).

The British Aluminium Co. Ltd. announce that following the retirement of H. W. L. Phillips in September next, these staff changes will be made at the Research Laboratories, Chalfont Park: A. C. Coates—Assistant Director of Research (Chemical) with effect from September 12; P. C. Varley—Assistant Director of Research (Metallurgical); Dr. C. E. Ransley—Senior Research Metallurgist; Dr. F. A. Champion—Senior Research Chemist.



14.F1. *REFERENCE BACK*

Readers are asked to note that blocks are now obtainable 8⅜ in. long by 4 in. thick by 2⅔ in. high, the number of blocks per sq. yd. of wall laid with ⅜-in. joints being 48 (table on reverse of Sheet). Under heading Ordering *the following should be added: "Where 2⅔-in. high blocks only are used, it is recommended that 8⅜-in. lengths be laid, the 17⅛-in. lengths being manufactured for mixed designs and random work."*



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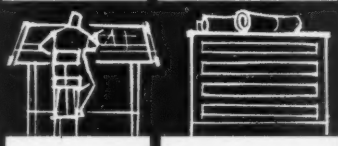
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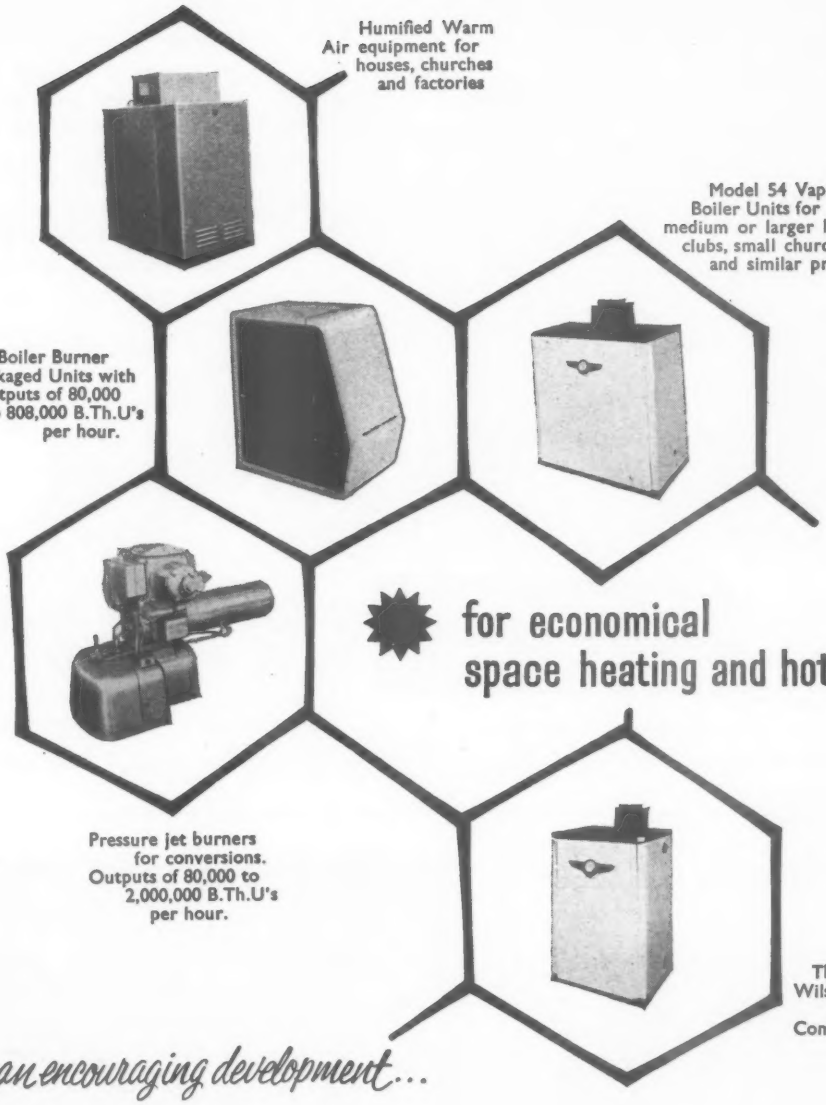
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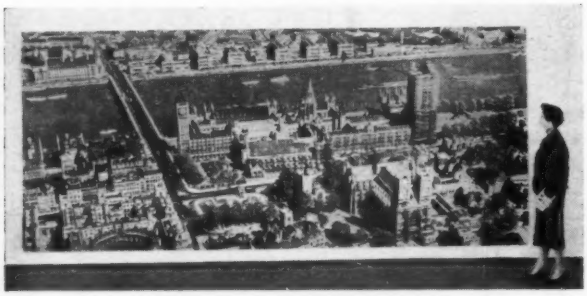
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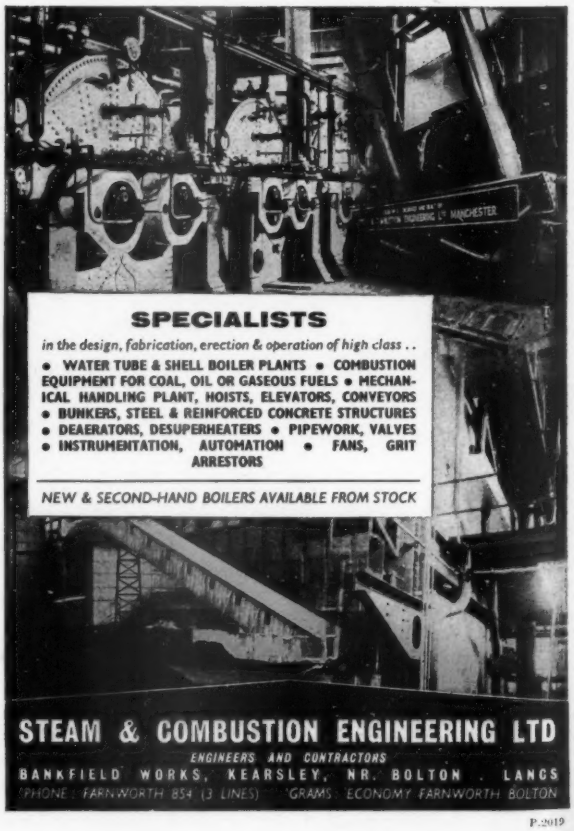
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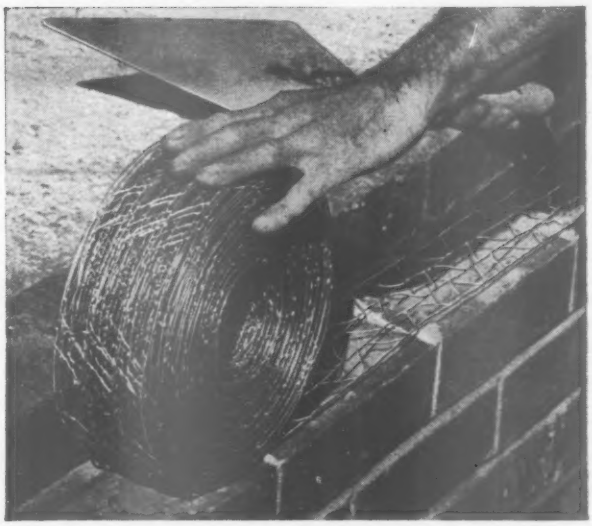
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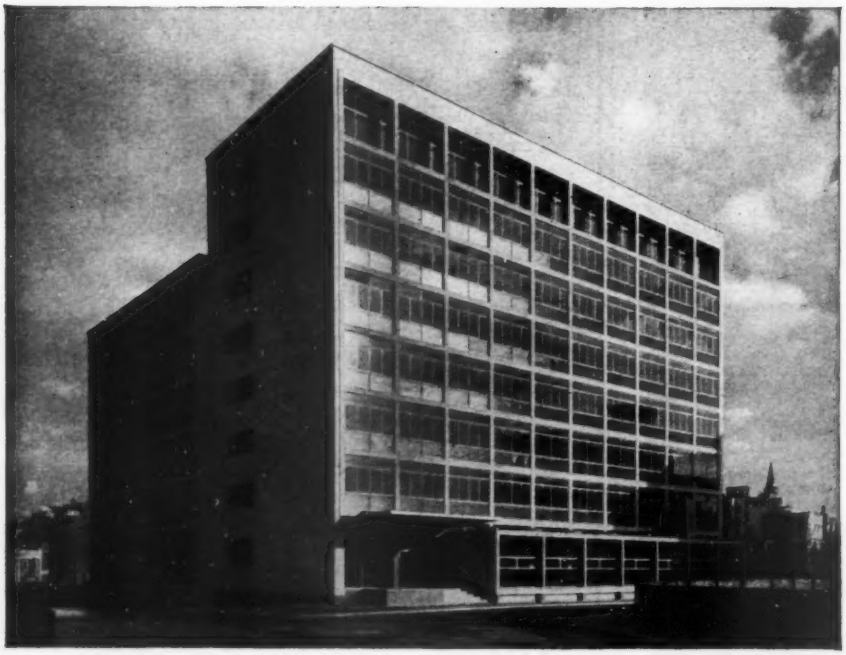


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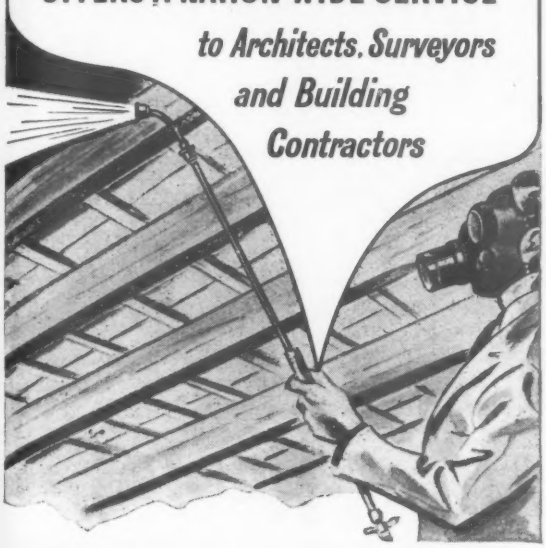
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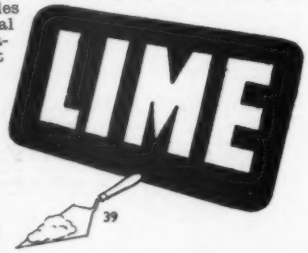


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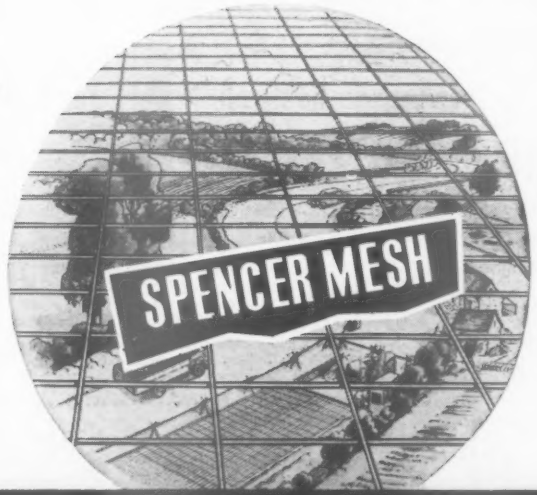
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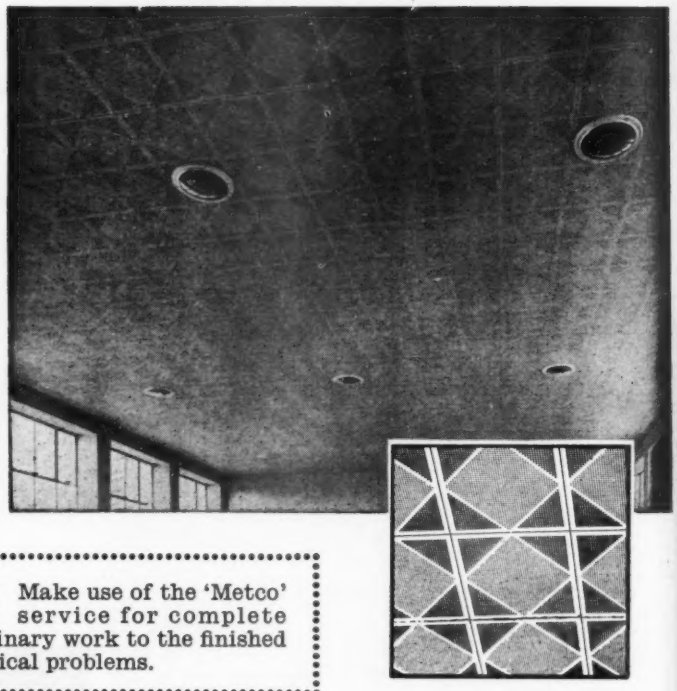
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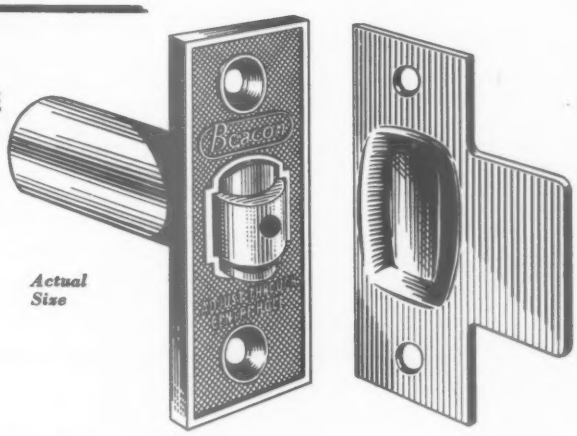
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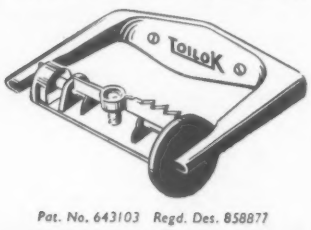
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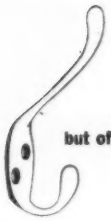
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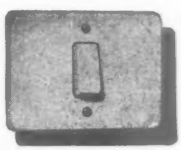
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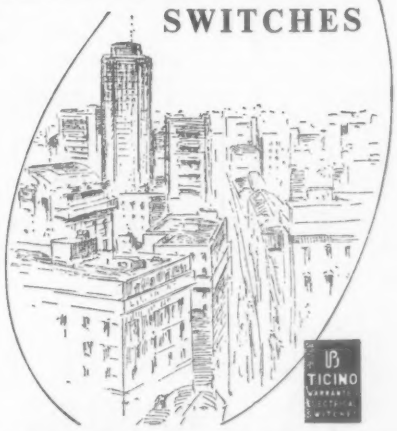
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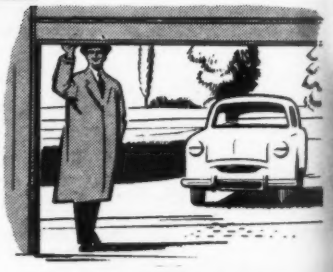
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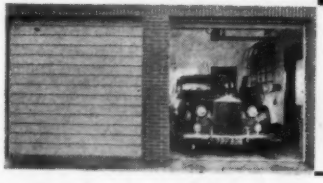


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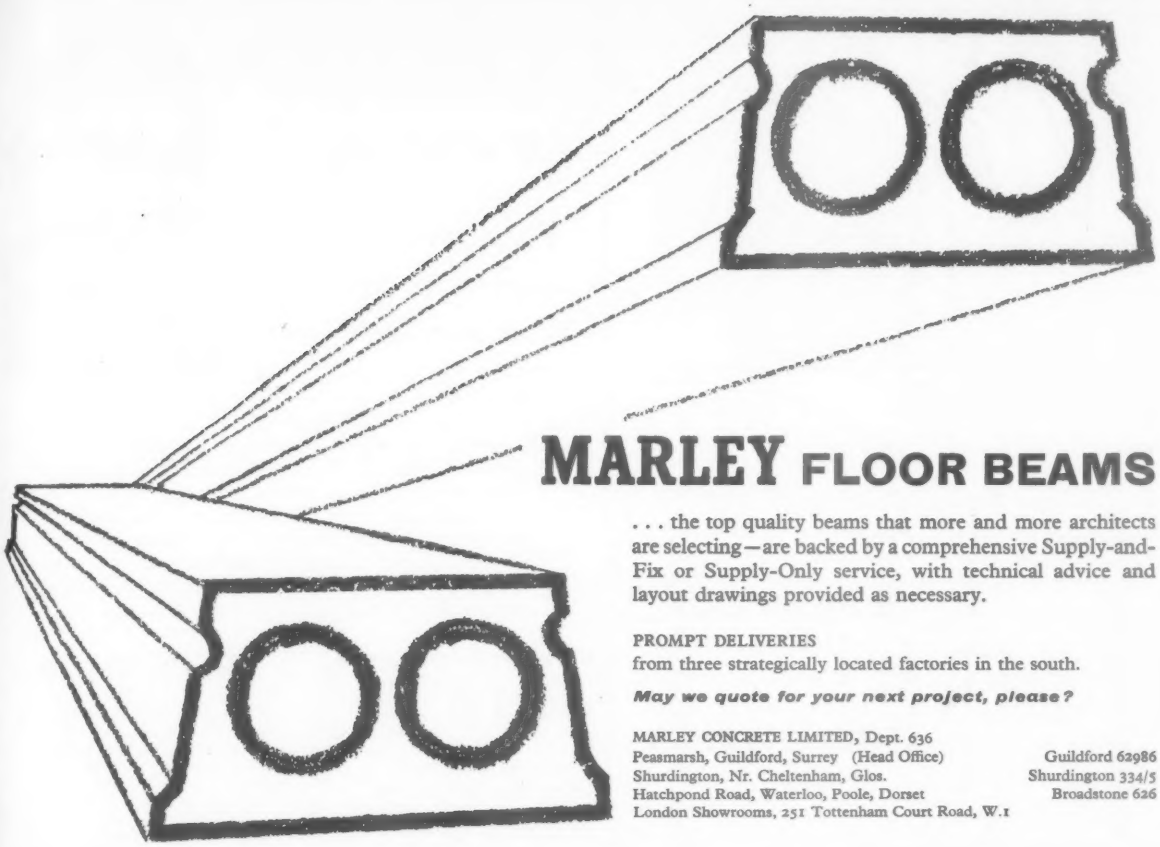




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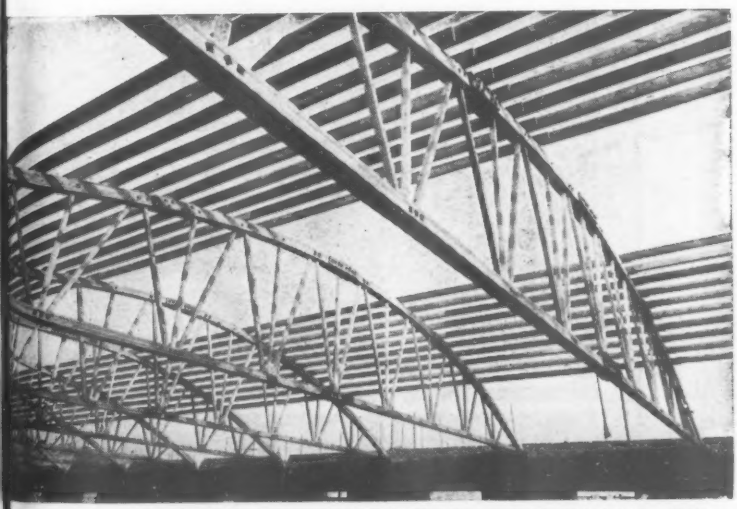
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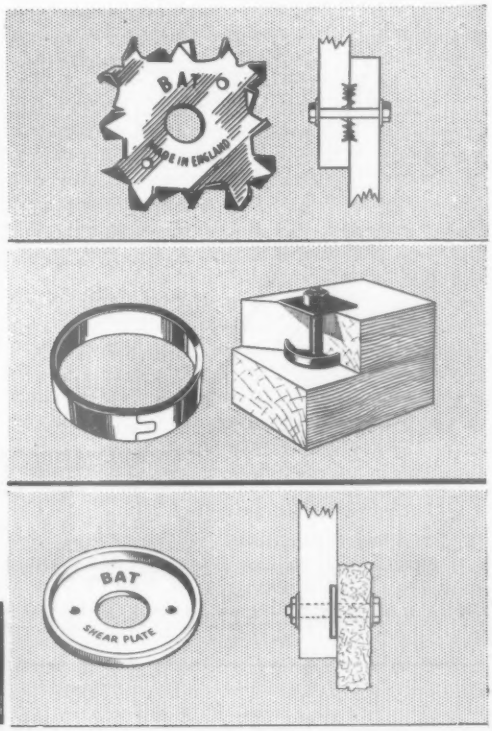
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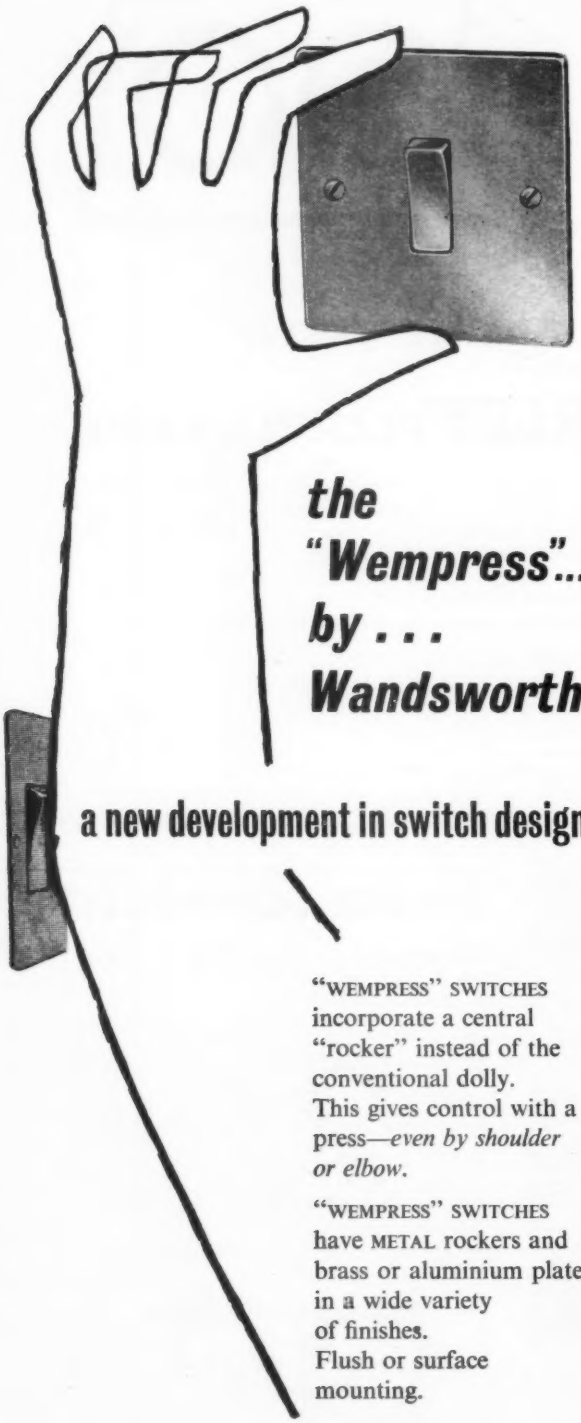
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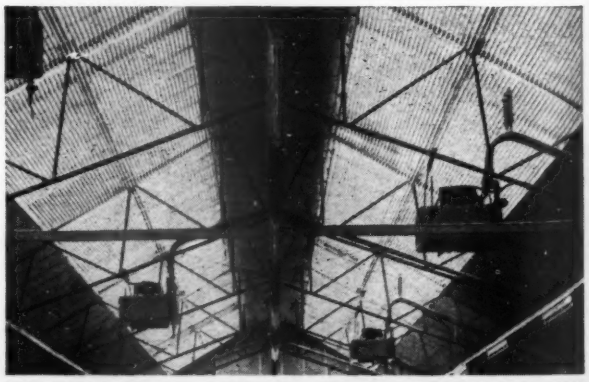
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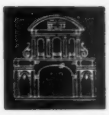


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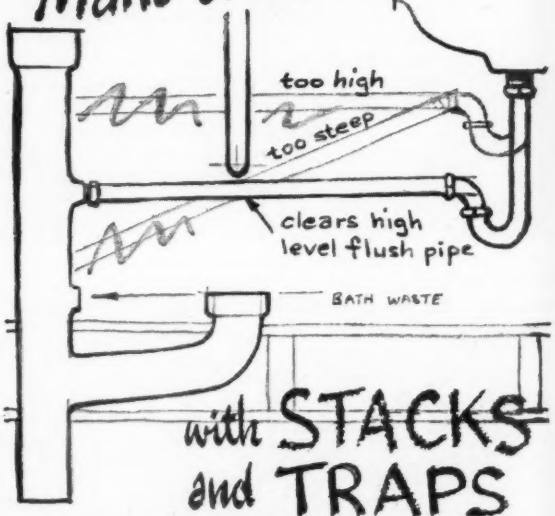
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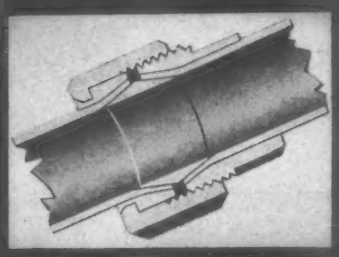


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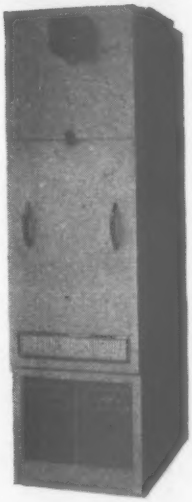
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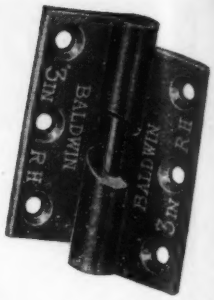
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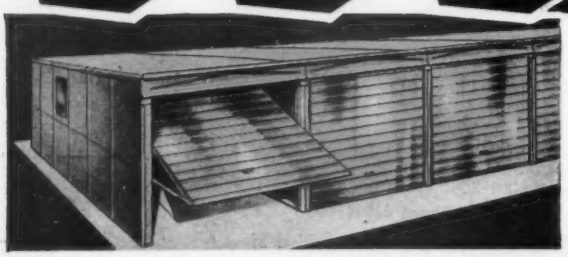
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CLASSIFIED ADVERTISEMENTS

Advertisements should be addressed to the Advt. Manager, "The Architects' Journal," 9, 11 and 13, Queen Anne's Gate, Westminster, S.W.1, and should reach there by first post on Friday morning for inclusion in the following Thursday's paper.

Replies to Box Numbers should be addressed care of "The Architects' Journal," at the address given above.

AIR-MAIL SERVICE available on request:
In response to requests from a number of Overseas subscribers for air-mail delivery of Public and Official Appointment details and Other Appointments Vacant, we have been pleased to arrange that cuttings of all such classified advertisements appearing in the A.J., shall be despatched by air-mail on Wednesday of each week (one day prior to A.J. publication date). The cost of this special service to Overseas subscribers will be 5s. for four weeks (1s. 3d. for each additional week) and prepayment should be sent by subscribers wishing to take advantage of this service. The charge we are making represents only the actual cost of the postage involved.

Public and Official Announcements

30s. per inch; each additional line, 2s. 6d.

METROPOLITAN BOROUGH OF HAMPSTEAD
Require the following staff in the Housing Architect's Department:—

1. ARCHITECTURAL ASSISTANT (Temporary). Grades A.P.T. I/II—Intermediate R.I.B.A. (£575—£845); Special Grade, Final R.I.B.A. (£750—£1,030); plus London Area weighting.
2. JUNIOR ARCHITECTURAL ASSISTANT (Temporary). Grade General Division Q (£230—£700, plus London weighting). Commencing salary according to qualifications and experience.

Successful candidates will be required to work in one of two teams engaged in the conversion of property, area re-development, and the design and construction of new flats and houses. Applications, giving age, training, experience, previous appointments and the names of three referees, to the Town Clerk (AJ), Town Hall, Haverstock Hill, N.W.3, by 21st April, 1959. No housing provided. 3581

STATES OF GUERNSEY
PUBLIC WORKS DEPARTMENT

Applications are invited for the permanent and pensionable post of ARCHITECTURAL ASSISTANT at a salary of £835 per annum rising by three annual increments to £940.

Applicants must be Associate members of the Royal Institute of British Architects and capable of preparing working and detailed drawings and specifications and supervising work.

Particulars of pension arrangements are obtainable on application.

Applications, stating age, qualifications, experience, present and previous appointments and salary, together with copies of two recent testimonials, should be delivered to the States Supervisor, States Office, Guernsey, Channel Islands, not later than Monday, 13th April, 1959. 3582

BOROUGH OF WILLESDEN
BOROUGH ENGINEER & SURVEYOR'S DEPARTMENT

Applications are invited from suitably qualified and experienced persons for the following permanent appointment:—

ASSISTANT ARCHITECT within Special Grade (£750—£1,030 p.a.).

London weighting, maximum £30 p.a., is payable in addition to the above salary.

The Council is unable to assist with housing accommodation.

Forms of application and conditions of appointment may be obtained from the Borough Engineer & Surveyor, Town Hall, Dyne Road, Kilburn, N.W.6. Applications to be returned to the undersigned not later than 9 a.m. on Monday, 20th April, 1959.

(signed) R. S. FORSTER,
Town Clerk.
3635

CITY OF BIRMINGHAM EDUCATION COMMITTEE
COLLEGE OF ART AND CRAFTS
Principal:
MEREDITH W. HAWES, A.R.C.A., A.R.W.S., N.R.D.
Director of the School of Architecture:
DOUGLAS JONES, Dip.Arch. (L'pool), F.R.I.B.A.

Applications are invited for the following full-time posts in the School of Architecture, from 1st September, 1959:

1. SENIOR LECTURER to take charge of one of the years in the School.
2. LECTURER to take charge of the School's Live Projects programme. The successful candidate will work in conjunction with the Year Master and students at the drawing board stage, and supervise the work when in progress.

Applicants should hold recognised qualifications. Salaries in accordance with Burnham (Further Education) Scale (Men):

Senior Lecturer: £1,417.10.0×£52.10.0 to £1,627.10.0 p.a.

Lecturer: £1,260.0.0×£31.10.0 to £1,417.10.0 p.a.

Forms of application and further particulars may be obtained from the Principal, College of Art & Crafts, Margaret Street, Birmingham, 3 (s.a.e.). *Closing date:* 30th April, 1959.

E. L. RUSSELL,
Chief Education Officer.
3698

NEWCASTLE REGIONAL HOSPITAL BOARD
REGIONAL ARCHITECT'S DEPARTMENT

During the next two years the Board plans to spend several millions on hospital developments and larger programmes are being planned to follow. The present building programme includes a wide variety of projects, ranging from houses to hospitals, and (since a large hospital resembles a small town) affords ample opportunity for gaining both general and hospital experience simultaneously.

The following posts in the Regional Architect's Department are at present open to applicants. The salary-scales quoted include interim increases pending completion of a current Health Service review of salaries.

(*i*) ASSISTANT ARCHITECTS (4). Salary £730 × £25 (2) × £30 (2) × £35 (5) × £40 (1)—£1,055.

Applicants should be registered architects and have had experience of the planning and construction of public buildings. The commencing salary will be fixed within the Grade by reference to relevant experience and to age.

(*ii*) ARCHITECTURAL ASSISTANT. Salary £545 at age 21 × £20 (3) × £25 (4) × £30 (2) to £765.

Applicants should have passed the Intermediate Examination of the R.I.B.A., or an examination recognised by the Institute as equivalent, and some practical experience is desirable.

The commencing salary within the grade will depend upon the applicant's age and practical experience, but will not exceed £605.

(*iii*) ARCHITECTURAL DRAUGHTSMAN. Salary £445 × £25 (5) × £30 (3)—£660.

Applicants should have had previous experience in an architect's drawing office and be neat and quick draughtsmen.

Evening study facilities are available at King's College of Durham University in Newcastle.

Applications, stating age, qualifications, past and present appointments, present salary and details of experience and training, together with the names of three referees (of whom at least two should be architects) should be forwarded to the Secretary to the Board, Benfield Road, Newcastle upon Tyne, 6, not later than 16th April, 1959. 3637

NORFOLK COUNTY COUNCIL
APPOINTMENT OF PLANNING ASSISTANT
A.P.T. Grade I (£575—£725 p.a.)

Applications are invited for the above post at Norwich. The Department is expanding and is embarking upon a most interesting programme of work. Preference will be given to candidates who possess Intermediate qualifications in Planning, Architecture, Engineering or Surveying, or an appropriate University Degree.

The appointment will be subject to the N.J.C. conditions of service, and applicants may be required to provide a car, for which standard allowances will be payable. Applications (no forms), including the names of two referees, should be submitted to the undersigned by 18th April, 1959.

R. I. MAXWELL,
County Planning Officer.
41/43, Thorpe Road,
Norwich. 3619

LONDON COUNTY COUNCIL
ARCHITECT'S DEPARTMENT

Vacancies for ARCHITECTURAL ASSISTANTS, starting salary up to £860. Full and interesting programme of houses, flats, schools and general buildings.

Application form and particulars from The Architect to the Council, County Hall, S.E.1, quoting AR/EK/14/59 (256). 3640

LONDON COUNTY COUNCIL
PARKS DEPARTMENT

ARCHITECTURAL ASSISTANTS. Good Draughtsmen with experience of preparation of working drawings and specifications and supervision of contract work. Salary up to £860. Apply Chief Officer, Parks Department (AI/A), County Hall, London, S.E.1. (WATerloo 5000, Ext. 8076.) (473.) 3587

SOUTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD

Applications are invited for the following appointment on the permanent staff of the Board's Regional Architect, generally in accordance with Whitley Council conditions of service. The person appointed would undertake interesting work on hospital development. The post offers a good opportunity to anyone wishing to gain experience in this field.

London Weighting is payable in addition to the salary rates shown.

(*a*) ASSISTANT ARCHITECT, or
(*b*) ARCHITECTURAL ASSISTANT.

Applicants for post (*a*) must be Associate Members of the Royal Institute of British Architects and capable of preparing working and detailed drawings and specifications and supervising work on individual projects. Experience of hospital planning and construction an advantage. The commencing salary will be within the scale £730×£25(2)×£30(2)×£35(5)×£40(1) — £1,055 p.a. (*b*) Applicants must have passed the Intermediate Examination of the Royal Institute of British Architects or an examination giving exemption therefrom. Salary £545 (at 21 or over) ×£20(3)×£25(4)×£30(2)—£765 p.a.

Application forms may be obtained from the undersigned at 40, Eastbourne Terrace, London, W.2, and must be completed and returned by not later than 20th April.

E. G. BRAITHWAITE, *Secretary.*
3699

COUNTY BOROUGH OF BOLTON
BOROUGH ARCHITECT'S DEPARTMENT

Applications are invited for the appointment of an ARCHITECT within Grade APT III (£845—£1,025) or Special Grade (£750—£1,030) according to qualifications, commencing salary dependent on experience. The post is superannuable, subject to medical examination, and the work is varied and responsible.

Applications, giving full details, including experience, present post and salary, and naming two referees, should be received by me not later than 20th April.

P. S. RENNISON, *Town Clerk.*
3690

BOROUGH OF NEWCASTLE-UNDER-LYME requires a SENIOR ASSISTANT QUANTITY SURVEYOR in the Borough Engineer and Surveyor's Department. Salary in A.P.T. III according to qualifications and experience (£845—£1,025).

Applicants will be required in connection with taking off for new Schools and Housing contracts. Favourable consideration will be given to the provision of housing accommodation in suitable cases.

Application forms and conditions of appointment may be obtained from the Borough Surveyor, Lancaster Building, High Street, Newcastle, Staffordshire, and must be returned to him not later than Monday, 20th April, 1959.

C. J. MORTON,
Town Clerk.
3692

BOROUGH OF FINCHLEY
HOUSING DEPARTMENT
JUNIOR ARCHITECTURAL ASSISTANT

Salary within A.P.T. Grade I, according to qualifications and experience (£575×£30=£725), plus London Weighting.

Subject to satisfactory service, anticipated duration of the post will be approximately 2-3 years.

Preference will be given to those who have passed the R.I.B.A. Intermediate Examination and who have had practical office experience in housing work.

The National Scheme of Conditions of Service and the Local Government Superannuation Acts apply and medical examination is required.

Applications stating age and full particulars of qualifications and experience, with the names of two referees, to be submitted to the Borough Housing Officer, The Avenue, Finchley, N.3, by first post on Wednesday, the 22nd April, 1959.

R. M. FRANKLIN,
Town Clerk.
3677

COUNTY BOROUGH OF BURTON UPON TRENT
BOROUGH ARCHITECT'S DEPARTMENT

Applications are invited for the appointment of ASSISTANT QUANTITY SURVEYOR in Special Grade (£750 to £1,030) at a commencing salary in accordance with qualifications and experience. Appointment subject to the provisions of the Local Government Superannuation Acts 1937-1953; to the passing of a medical examination, and to determination by one month's written notice on either side.

Housing accommodation, at a rent, will be provided for the successful candidate if required.

Applications giving age, qualifications, full details of experience and names of two referees, to the Borough Architect, Town Hall, Burton upon Trent, by 24th April, 1959.

H. T. MEADES,
Town Clerk.
3686

GHANA PUBLIC SERVICE COMMISSION
TOWN PLANNING OFFICER—
MINISTRY OF HOUSING

An experienced TOWN PLANNER urgently required for research work on regional and town planning. Will take charge of an office concerned with the review of statutory planning areas in the first instance. Applicants, not less than 28 years of age, must be A.R.I.B.A. and/or A.M.T.P.I. or hold equivalent qualification and must have had at least 5 years' experience in Town Planning. Salary in range £1,660—£2,080 p.a.

Terms of Service: The appointment will be on contract/gratuity terms for two tours each of 18-24 months. Gratuity at rate of £12.10/- for each completed month of service. Secondment or pensionable terms may be arranged. Free first class passages for officer, wife and up to 3 children under 18 years and in addition an education allowance for children when not resident in Ghana of £100 a child for up to 3 children under 16 years. Accommodation at low rental. Interest-free advance for car and car maintenance allowance. Generous home leave on full pay. Income tax at low local rates.

For further particulars and application form write, stating age, qualifications and experience, to THE DIRECTOR OF RECRUITMENT, GHANA HIGH COMMISSIONER'S OFFICE, 13, BELGRAVE SQUARE, LONDON, S.W.1. 3701

PLANNING ASSISTANT required for BANFF COUNTY COUNCIL, salary scale £945—£1,085 according to experience. Applicants must be A.M.T.P.I., with experience in dealing with applications for planning permission and in the preparation of and legislation relating to development plans. Appointment superannuable. House available. Applications stating age, experience, and whether married, together with copies of three recent testimonials, to be sent to County Architect, 13, Cluny Square, Buckie, by 22nd April, 1959. 3692

CWMBRAN DEVELOPMENT CORPORATION
APPOINTMENT OF ARCHITECTURAL STAFF

Applications are invited for the undermentioned superannuable posts, the point of entry in each grade being in accordance with qualifications and experience.

(*a*) ARCHITECTURAL ASSISTANT.
A.P.T. IV/V. £753—£1,029.

(*b*) ASSISTANT ARCHITECT.
A.P.T. V/VI. £844—£1,146.

Candidates for post (*a*) should either be Graduates about to complete their studies at a recognised school of Architecture or be persons possessing minimum qualification of Intermediate Examination of R.I.B.A. with office experience.

Candidates for post (*b*) should be Associates of the R.I.B.A. with suitable office experience and should have had good experience in house design, construction and layout.

Housing accommodation will be made available to successful married candidates.

Applications stating age, experience, details of present and former employment (together with applicable salaries) and the names and addresses of two referees must reach the undersigned by first post on Monday, May 4th, 1959.

J. C. P. WEST, A.R.I.B.A., M.T.P.I.,
Chief Architect.

Victoria St.,
Cwmbran,
Mon. 3685

HORNCHURCH URBAN DISTRICT COUNCIL
ARCHITECTURAL ASSISTANT, GRADE APT II
(£725—£845)

Applications are invited for the above permanent appointment at a salary in accordance with Grade APT. II (£725—£845). In addition, an amount equivalent to that of London Weighting will be paid.

Candidates should be good draughtsmen with a special knowledge of construction and experience in the preparation of working drawings. They must have passed the R.I.B.A. Intermediate Examination and be studying for the final.

The appointment will be subject to the Local Government Superannuation Acts, the National Scheme of Conditions of Service and the passing of a medical examination.

Housing accommodation will be available, if required.

Application forms may be obtained from and must be returned to the undersigned not later than Saturday, 18th April, 1959.

P. L. COX,
Clerk of the Council.

Council Offices,
Billet Lane,
Hornchurch,
Essex. 3683

BOROUGH OF ROMFORD

Applications are invited for the undermentioned vacancies in the Architects' Section of the Borough Engineer & Surveyor's Department:—

(*a*) ARCHITECTURAL ASSISTANT,
A.P.T. I/II (£575—£845).

(*b*) JUNIOR ARCHITECTURAL ASSISTANT,
Higher General Division (£230—£560).

Each appointment will be made at a salary within the scale according to qualifications and experience.

Consideration will be given to the payment of reasonable removable expenses and, in the case of appointment (*a*), to assistance, if required, in the provision of housing accommodation.

Particulars and conditions of each appointment may be obtained on application to the Town Clerk, Town Hall, Romford, to whom completed applications are to be sent not later than Saturday, 18th April, 1959. 3682

STEPNEY M.B.C.

require ARCHITECTURAL ASSISTANTS (unestablished); £605 to £1,060 commencing according to experience. Applicants must possess suitable architectural qualifications and be experienced in design, construction and, for the higher grades, in the administration of large building contracts. Apply to Borough Engineer, 227, Commercial Road, E.1. 3681

THURROCK U.D.C. (Engineer and Surveyor's Dept.) require ARCHITECTURAL ASSISTANT I/II under Architect to the Council. Salary—A.P.T. I/II, *i.e.*, £575—£845 p.a. Good architectural experience necessary. Applicants must be capable of preparing working drawings in all categories and should have passed the Intermediate Examination of the R.I.B.A. The Council have interesting projects in hand, including an Indoor Swimming Bath. Appointment pensionable. Applications, stating age, qualifications, and experience, and quoting three referees, to Clerk of the Council, Council Offices, Grays, Essex, by 28th April, 1959. Canvassing disqualifies. Relationship with Members or Senior Officers of the Council must be disclosed. 3700

BOROUGH OF ILFORD
BOROUGH ENGINEER'S DEPARTMENT
ARCHITECTURAL STAFF

SENIOR ASSISTANT ARCHITECT Grade A.P.T. IV or a higher special Grade. Salary £1,025—£50—£1,175 p.a. or £1,020—£50—£1,220 plus London Weighting, commencing salary to be fixed having regard to qualifications and experience. Candidates must be Associate Members of the R.I.B.A. and have suitable experience in the development of Council housing, multi-storey flats and public buildings. Appointment permanent, superannuable and subject to medical examination.

The Council is prepared to consider, if necessary, the provision of limited housing accommodation in connection with this appointment.

Forms of application obtainable from the Borough Engineer, Town Hall, Ilford, Essex, should be returned by Saturday, 25th April. 3695

CITY OF PLYMOUTH
CITY ARCHITECT'S DEPARTMENT

Applications are invited for the appointment of:—

(*a*) TWO ASSISTANT ARCHITECTS (Special Scales £750×£40—£1,030).

(*b*) THREE ASSISTANT ARCHITECTS, Grade APT.I (£575—£725).

Applicants for (*a*) must be Registered Architects, and (*b*) must have passed the intermediate R.I.B.A. examination and preference will be given to members of the R.I.B.A.

Application forms obtainable from the City Architect, Seymour Road, Plymouth, accompanied by copies of not more than three recent testimonials and/or names of persons to whom reference may be made, returnable not later than the 27th April, 1959. 3696

COUNCIL OF THE COUNTY OF ABERDEEN

Applications are invited for appointment as ARCHITECTURAL ASSISTANT in the County Architect's Department. Salary A.P.VI-VIII (£880—£1,085 per annum). Applicants must be Associates of the Royal Institute of British Architects. The appointment is superannuable.

Application forms may be obtained from the undersigned. Closing date—20th April, 1959.

JAMES L. CRAIG,
County Clerk.

County Buildings,
22 Union Terrace, Aberdeen. 3697

AYCLIFFE DEVELOPMENT CORPORATION
APPOINTMENT OF ARCHITECTURAL ASSISTANT

Applications are invited for the above appointment at a salary in accordance with Grades A.P.T. IV or A.P.T. V of the Whitley Council for New Towns Staff Scale of Salaries, according to qualifications and experience. These salary scales vary from £753 p.a. to £1,029 p.a.

Appointment subject to N.J.C. Conditions, superannuation and medical examination.

Housing accommodation if necessary.

Applications stating age, qualifications and experience, together with the names of two referees, to arrive not later than Friday, the 17th April, 1959.

A. V. WILLIAMS,
General Manager.

Newton Aycliffe,
Co. Durham. 3670

OXFORDSHIRE COUNTY COUNCIL
COUNTY ARCHITECT'S DEPARTMENT

Applications are invited for the following:—

(*a*) ASSISTANT ARCHITECTS. Special Grade (£750—£1,030).

(*b*) ARCHITECTURAL ASSISTANTS. A.P.T. Grade I (£575—£725).

Applicants for appointments (*a*) must have passed a suitable professional Final examination and for (*b*) must have passed the appropriate Intermediate examination.

Applications giving names of two referees and one recent testimonial, must give details of qualifications, education, experience, age and relevant particulars and should be sent to the County Architect, Park End Street Offices, Oxford, not later than the 21st April, 1959.

GERALD GALE BURKITT,
Clerk of the Council. 3673

CITY OF PORTSMOUTH
CITY ARCHITECT'S DEPARTMENT

Applications are invited for the appointment of ARCHITECTURAL ASSISTANTS.

The commencing salary will be within the range of either A.P.T. Grade I (£575—£725), or A.P.T. Grade II (£725—£845), according to experience.

Applicants must have passed the Intermediate Examination of the R.I.B.A., or its equivalent at one of the recognised Schools of Architecture.

Applications, with full details, and names of two referees, must be delivered to the City Architect, 1, Western Parade, Portsmouth, not later than Thursday, 16th April, 1959.

Canvassing will disqualify.

V. BLANCHARD,
Town Clerk. 3699

OXFORD COLLEGE OF TECHNOLOGY
SCHOOL OF ARCHITECTURE AND BUILDING

Applications are invited for the following posts from September 1959:—

LECTURER as Year Master in ARCHITECTURE and to be responsible for Studio work in the part-time course. Degree or Diploma of a recognised school, A.R.I.B.A., and professional experience required.

LECTURER IN THEORY & DESIGN OF STRUCTURES and allied subjects in H.N.D. course in Building and in full-time Architecture course. Candidates should be Corporate Members of an appropriate professional Institution and have good design experience.

LECTURER IN QUANTITY SURVEYING AND ALLIED SUBJECTS to R.I.C.S. students and H.N.D. Building course and National Certificate courses. A.R.I.C.S. and good professional experience required.

ASSISTANT GRADE "B" as Assistant Year Master in ARCHITECTURE. Degree or Diploma of a recognised school, A.R.I.B.A., and professional experience required.

Salaries in accordance with the Burnham Technical Report, *viz*:—

LECTURER. £1,260 by £31 10s. to £1,417 10s. Industrial experience in a senior post may be specially recognised in fixing the starting salary.

GRADE B. £682 10s. by £26 5s. to £1,076 5s. Additions for appropriate training and qualifications; industrial experience after 21 will be recognised in fixing the starting salary.

Further information can be obtained from The Principal, College of Technology, Headington Road, Oxford, to whom applications must be returned by 20th April, 1959. 3672

LONDON COUNTY COUNCIL

ARCHITECTS required for interesting and varied work which provides excellent experience in alterations and extensions to a variety of buildings. Candidates should be able to carry jobs through all stages—surveys, schemes, working drawings specifications and supervising contracts. Up to £1,090 according to qualifications and experience. Application form and particulars from Hubert Bennett, F.R.I.B.A., Architect to Council (AR/EK/31/59), County Hall, S.E.1. (652.) 3693

MARLEY MULTIPLE GARAGES
IN PRECAST CONCRETE



Of spacious dimensions
and good appearance.
Fire-proof, rot-proof
garages available in 4 types—
high front, high back,
back-to-back and stepped—
with traditional timber
or up-and-over doors.
Low initial cost. Virtually maintenance free.
Marley will supply and deliver only or supply and erect.
Site work can also be undertaken, if required. Quotations on request.

MARLEY CONCRETE LIMITED Dept. 638
Peasmarsh, Guildford, Surrey. Guildford 62986 Shurdington, Nr. Cheltenham, Glos. Shurdington 334/5
Hatchpond Road, Waterloo, Poole, Dorset. Broadstone 626 London Showrooms: 251 Tottenham Court Road, W.1.

CITY OF NOTTINGHAM
ESTATES DEPARTMENT

Applications are invited for the appointment of ARCHITECTURAL ASSISTANT, of Intermediate R.I.B.A. standard, in the Chief Architect's Section. The salary will be in accordance with Grade A.P.T. II (£725—£845).

The appointment will be subject to the National Joint Council's Scheme of Conditions of Service.

Applications stating age, qualifications, experience, present appointment and salary, and naming two referees, should be sent to the Estates Surveyor and Valuer, The Guildhall, Nottingham, by Tuesday, 21st April, 1959.

T. J. OWEN,
Town Clerk.
3667

COUNTY BOROUGH OF CROYDON
ARCHITECTURAL ASSISTANT

Applications are invited for this appointment in the School Architect's Section from persons of the R.I.B.A. Intermediate examination standard.

Salary commencing according to qualifications and experience between £695 per annum and £875 per annum on a scale rising (when fully qualified) to £1,060 per annum.

Application forms from Chief Education Officer, 19, Katharine Street, Croydon. Closing date 27th April, 1959.

E. TABERNER,
Town Clerk.
3668

COUNTY COUNCIL OF SUTHERLAND
COUNTY ARCHITECT'S DEPARTMENT
DORNOCH

Applications are invited for two vacancies for temporary ASSISTANT ARCHITECTS in the County Architect's Department, Dornoch.

Applicants must be fully qualified A.R.I.B.A., and should have a good knowledge of School design and construction.

The salary scale for both posts is Grade VIII of the A. & P. Division of the N.J.I.C. Scheme.

The appointments are subject to the conditions of service of the National Joint Industrial Council and to the provisions of the Local Government Superannuation (Scotland) Act, 1937, and will be terminable by three months' notice in writing on either side.

The successful candidates will require to pass a Medical Examination.

Applications, stating age, qualifications, present and past appointments, and details of experience, together with the names of three persons to whom reference can be made as to ability, should be forwarded to the Undersigned not later than 22nd April, 1959.

Canvassing, directly or indirectly, will disqualify.

A. J. MACRAE,
County Clerk.
3671

CITY OF LANCASTER

Applications are invited for the appointment of a QUANTITY SURVEYING ASSISTANT, Salary A.P.T. II (£725 to £845 per annum) in the Architects' Division of the City Engineer's Department. Preference will be given to applicants having passed the Intermediate examination of the R.I.C.S.

Housing accommodation may be made available in suitable cases.

Applications with names of two persons to whom reference can be made to be received by Mr. L. Lyons, B.Sc., A.M.Inst.C.E., City Engineer, Town Hall, Lancaster, not later than Friday, 24th April, 1959.

J. D. WADDELL,
Town Clerk.
3680

COUNTY BOROUGH OF HASTINGS

Applications are invited for the following appointments in the Borough Engineer's Department:—

(*a*) ASSISTANT ARCHITECT. Special Grade (£750—£1,030) for Educational buildings and general development, housing, etc.

(*b*) ASSISTANT ENGINEER. Special Grade (£750—£1,030). Experience should include highway construction and maintenance.

(*c*) ENGINEERING ASSISTANT or GRADUATE ENGINEERING ASSISTANT, A.P.T. I (£575—£725). A wide variety of works are to be carried out and excellent opportunities exist for gaining good experience in municipal engineering.

Point of entry in Grades will be dependent on experience.

Housing accommodation will be available if required.

Applications, stating age, qualifications, present and previous appointments and salary, and the names of three referees to be sent to the Borough Engineer, 37, Wellington Square, Hastings, not later than 18th April, 1959. Canvassing will disqualify.

N. P. LESTER,
Town Clerk.
3679

CUMBERNAULD DEVELOPMENT
CORPORATION

ASSISTANT LANDSCAPE ARCHITECTS (2) are required by Cumbernauld Development Corporation. Salary Scale Whitley Council for New Towns Staff A.P.T. III, £679 to £811 per annum with placing according to training and experience. Superannuation; five-day week.

Write for application form to the General Manager, Cumbernauld Development Corporation, Cumbernauld House, Cumbernauld, by Glasgow, with whom completed applications should be lodged not later than Monday, 20th April, 1959.
3597

COUNTY BOROUGH OF SOUTHEND-ON-SEA
BOROUGH ARCHITECT'S DEPARTMENT

Applications are invited for the following posts:—

TECHNICAL ASSISTANT (Architectural), £575 by annual increments of £30 to £725.

ASSISTANT QUANTITY SURVEYOR, £750 by annual increments of £40 to £1,030.

Candidates must be suitably qualified and experienced.

The appointments will be subject to the provision of the Local Government Superannuation Acts and the National Joint Council's Scheme of Conditions of Service so far as adopted by the Council. Medical examination.

Applications, stating age, qualifications and experience, with the names of two referees, should be submitted to the Borough Architect, 30, Alexandra Street, Southend-on-Sea, forthwith.

Canvassing will disqualify. Any candidate who is related to member of officer of the Council is required to disclose the fact.

ARCHIBALD GLENN,
Town Clerk.
3696

EDINBURGH CORPORATION
CITY ARCHITECT'S DEPARTMENT

ARCHITECTS are invited to apply for the following vacancies:—

SENIOR ASSISTANT ARCHITECT to act as Group Leader. Ability and experience to handle major contracts. Scale: £1,070 to £1,270 × £40.

SENIOR ASSISTANT ARCHITECTS of wide general experience. Scale: £950 to £1,125 × £35.

ASSISTANT ARCHITECTS. Scale: £760 to £1,025.

Qualifications and experience will determine the point of entry to the above scales.

Applications, giving full details and the names of two referees, and marked "Confidential," to the City Architect, City Chambers, Edinburgh, 1, not later than 18th April, 1959. 3695

NEWCASTLE UPON TYNE EDUCATION
COMMITTEE

Architects in practice in the North-East are invited to apply for appointment to undertake the planning of extensions and alterations to the College of Further Education, Bath Lane, Newcastle upon Tyne. This project includes new building work to the value of approximately £268,000 and alterations and adaptations to existing premises to the value of about £40,000.

Architects who wish to be considered by the Education Committee for this appointment should apply for further information to the Director of Education, City Education Office, Northumberland Road, Newcastle upon Tyne, 1, by 4th April, 1959. 3669

EAST RIDING OF YORKSHIRE
COUNTY COUNCIL

Applications are invited for the following permanent appointments on the staff of the County Architect.

ASSISTANT ARCHITECTS. Special Scale—£750 to £1,030 per annum.

Applicants are required to have passed Parts I and II of the R.I.B.A. Final or Special Final examination or their equivalent at one of the recognised schools of architecture.

ARCHITECTURAL ASSISTANTS. Grade A.P.T. I—£575 to £725 per annum.

Applicants are required to have passed the Intermediate R.I.B.A. examination.

ASSISTANT QUANTITY SURVEYOR. Special Scale—£750 to £1,030 per annum.

Applicants are required to have passed the Final examination of the Royal Institution of Chartered Surveyors.

Particulars of qualifications, age, experience, past and present appointment with salaries, together with the names of three referees, should be sent to the County Architect, County Hall, Beverley, not later than Saturday, 18th April, 1959.

Assistance towards removal, lodging and travelling expenses may be granted.

THOMAS STEPHENSON,
Clerk of the Council.
3666

LONDON COUNTY COUNCIL
ARCHITECT'S DEPARTMENT

Vacancies for ARCHITECT/PLANNERS. Tasks include three-dimensional planning within London's eight major Comprehensive Development Areas (including Stepney/Poplar, South Bank and Elephant and Castle) and other Redevelopment Areas. Work includes preparation of comprehensive layouts for all important areas of new development throughout the County including areas to be redeveloped in connection with road improvements.

Starting salaries up to £860 according to experience and qualifications. Application forms and particulars obtainable from Hubert Bennett, F.R.I.B.A., Architect to Council (Ref. AR/EK/7/59), County Hall, London, S.E.1. (146) 2804

SPALDING RURAL DISTRICT COUNCIL

ARCHITECTURAL ASSISTANT required. Salary A.P.T. I of the National Scale (£575 p.a. to £725 p.a.). Medical Examination. Superannuation. Council house in the rural district available for letting. Applications with names of two referees to the Clerk of the Spalding Rural District Council, Priory Road, Spalding, not later than 20th April, 1959. 3691

HARLOW DEVELOPMENT CORPORATION

ASSISTANT ARCHITECT required. Salary Grade £934—£1,146 per annum. Candidates should be A.R.I.B.A. or equivalent and have experience in the design and supervision of buildings. Housing provided in suitable cases. Applications within seven days to General Manager, "Terlings," Harlow, Essex. 3662

LONDON COUNTY COUNCIL

ARCHITECTS, Grade III, required for Housing, Schools and General Divisions. Full and varied programme of new work including schools, multi-storey flats and Town Development. Up to £1,090 according to qualifications and experience. Particulars and application form from Hubert Bennett, F.R.I.B.A., Architect to Council, AR/EK/25/29, County Hall, S.E.1. (441) 3310

COUNTY BOROUGH OF SOUTHAMPTON
BOROUGH ARCHITECT'S DEPARTMENT

Applications are invited for the following permanent positions:—

(*a*) ASSISTANT PLANNING OFFICER (Development Control) Special Grade (£750—£1,030) to assist with Development Control, examining applications, site inspections, interviews with applicants, preparation of reports.

Applicants should be A.M.T.P.I., Architectural qualification or experience an advantage.

(*b*) PLANNING ASSISTANT Grade A.P.T. II (£725—£845) for Survey, Development Plan review, Redevelopment Areas and Compulsory Purchase Orders. Candidates should have passed the Intermediate Examination of the Town Planning Institute or other appropriate body.

Commencing salary according to experience; candidates should state their housing needs.

Application forms from the Borough Architect, Civic Centre, Southampton, returnable by 18th April, 1959. 3671

BEESTON AND STAPLEFORD URBAN
DISTRICT COUNCIL
ARCHITECTURAL ASSISTANT

Applications are invited for the above appointment, in Grade II (£725—£845) or Special Grade (£750—£1,030), the grade and commencing salary to be according to applicant's qualifications and experience.

Applications, accompanied by the names and addresses of two referees, should be forwarded to the Housing Architect, Town Hall, Beeston, Nottingham, not later than 30th April, 1959.

H. D. JEFFRIES,
Clerk of the Council.
3650

Architectural Competition

30s. per inch; each additional line, 2s. 6d.

ARCHITECTURAL COMPETITION
MEDICAL TEACHING CENTRE, CARDIFF

The Promoters—the Board of Governors of the United Cardiff Hospitals and the Welsh National School of Medicine—invite Architects resident in Great Britain, Northern Ireland and Eire to submit designs in competition for a proposed Medical Teaching Centre to be erected in Cardiff. The Centre will comprise a Medical School, a Teaching Hospital (of 650 beds initially but with a possible future extension to 800 beds), a Dental School and Dental Hospital, together with residential accommodation for nurses, medical students, etc.

The Promoters have appointed Sir Percy Thomas, P.P.R.I.B.A.; F. R. S. Yorke, Esq., F.R.I.B.A.; J. H. Forshaw, Esq., C.B., M.C., F.R.I.B.A.; Provost A. Trevor Jones, M.D., F.R.C.P., D.P.H., and Dr. A. R. Culley, C.B.E., M.D., D.P.H., to adjudicate on the designs received and to make the award.

PREMIUMS

1st Prize	£5,000 (to be merged with the fee)
2nd Prize	£3,000
3rd Prize	£2,000

For the purpose of this competition, the word "architect" shall mean any person who at the time of his application for the competition conditions is registered under the Architects' (Registration) Acts, 1931 and 1938, or, being qualified for registration had already made application to the Architects' Registration Council in the prescribed form to be admitted to the register. Any applicant for the conditions should state his registration number, and in the case of an unregistered person who has made application for registration, the date of such application and the number of the receipt issued by the Architects' Registration Council in respect of the admission fee. Where application is made by a firm the registration numbers of the architect partner or partners of the firm must be given.

Applications for Conditions, Schedules of Accommodation, Site Plans, etc., accompanied by a deposit of £3 3s., are to be addressed to the undersigned not later than 24th April, 1959. Deposits returnable upon receipt of a *bona fide* design or if Conditions are returned within one month before date of submission of designs.

DAVID G. MORGAN,
Secretary to the Board of Governors.
United Cardiff Hospitals,
Cardiff Royal Infirmary,
Newport Road, Cardiff. 3599

Architectural Appointments Vacant

4 lines or under, 9s. 6d.; each additional line, 2s. 6d. Box Number, including forwarding replies, 2s. extra

SENIOR ASSISTANT required of Intermediate/Final standard in Croydon office. Varied practice of interesting work. Good draughtsman and sound knowledge of construction essential, together with ability to manage jobs. Five-day week. Salary according to experience. Apply George Lowe & Partner, 4, High Street, Croydon 3666/9. 2611

ARCHITECTURAL firm in Home Counties with varied practice, require ASSISTANTS, Intermediate, qualified, or at that standard. State experience and salary required to Box 3089.

TWO ARCHITECTURAL ASSISTANTS required for very large scheme. Considerable office experience is essential. Office West-End. Good salary and bonus. Box 3578.

ARCHITECTURAL ASSISTANTS required in West End Office. Large interesting contracts just commencing. Salaries around £900. Box 3154.

ARCHITECTS' co-partnership require ASSISTANTS for working drawings and detailed design. Salary according to experience. Write 44 Charlotte Street, London, W.1, or telephone Langham 5791. 3265

W. H. WATKINS, GRAY & PARTNERS require ASSISTANT for interesting hospital work, pension scheme in operation. Write or phone, 57, Catherine Place, S.W.1. Victoria 7761. 3300

ARCHITECTURAL ASSISTANTS required. Starting salary £915 per annum. Glasgow office, five-day week. Schools, Offices, etc. State Experience. D. Harvey & A. Scott, 2, Lynedoch Place, Glasgow, C.3. 3368

ARCHITECTURAL ASSISTANTS required. Starting salary £750 per annum. Glasgow office, five-day week. State experience. D. Harvey & A. Scott, 2, Lynedoch Place, Glasgow, C.3. 3369

ARCHITECTURAL ASSISTANTS required about Intermediate standard. Opportunities for good all round experience. Please write stating age, experience and Salary required. Box 3386.

SEELY AND PAGET have vacancy in their City Office. Intermediate R.I.B.A. standard with two years' office experience and ability to work with minimum supervision. The work of the practice is varied and covers Ecclesiastical, Training Colleges and Schools, Domestic and General. Salary by agreement. Telephone Met 8511. 3423

CAPABLE ARCHITECTURAL ASSISTANTS (all grades) required in a modern office in Hemel Hempstead. Interesting and varied work ranging from domestic design to nuclear power station projects. State age, training, qualifications and/or experience. Maurice H. J. Bebb, L.R.I.B.A., 16-19, Grease Street, London, W.1. 3426

ARCHITECTURAL ASSISTANTS, Final and Intermediate, required by progressive firm of Birmingham architects. Work involves preparation of designs, working drawings, site supervision, etc., on numerous types of work. Salary by arrangement. Box 3435.

ARCHITECT'S ASSISTANTS required, Intermediate and Final standard, also surveyors. Salaries from £600 to £1,000 per annum. Offices in Stroud and Dursley and site office in Bristol. Write giving details of qualifications and experience to Ellery Anderson, Roizer & Falconer, Imperial House, Stroud, Gloucestershire. 3463

ROBERT POTTER & RICHARD HARE, F./A.R.I.B.A., have the following vacancies:
(a) QUALIFIED ASSISTANT ARCHITECT to work on interesting University project. Experience of multi-storey buildings an advantage.
(b) ARCHITECTURAL ASSISTANT for the preparation of working drawings and surveys. Intermediate R.I.B.A. standard. Initial engagement for one-year contract with possibility of renewal.
Write stating qualifications, experience and salary required to De Vaux House, Salisbury. 3618

APPLICATIONS are invited for the following staff: 1. ASSISTANT ARCHITECT, qualified, with experience on large-scale building projects: salary between £750 and £1,000 per annum according to experience. 2. ASSISTANT ARCHITECT, Intermediate standard, capable of dealing with a variety of works: salary between £550 and £700 per annum according to experience; this staff is required for work on a new college, a multiple store and large scale housing and flat development, etc. Applications to Waring & Netts, Chartered Architects, 36 Jesmond Road, Newcastle upon Tyne, 2. 3625

ARCHITECTURAL ASSISTANTS required by Sir William Halcrow & Partners for Architects' Department. Intermediate and Final standard. Salary according to age and experience. Apply giving particulars of age, qualifications and experience to E. J. D. Mansfield, A.R.I.B.A., Sir William Halcrow & Partners, 47, Park Lane, London, W.1. 3616

CHELTENHAM. Experienced SENIOR ASSISTANT required in large and progressive office. Good salary to applicant prepared to take responsibility for variety of large and small contracts. Box 3609.

YOUNG ARCHITECT (or man nearing qualification) having design ability and a desire for responsibility, required for a small progressive office in the Midlands. Salary according to ability. Write to W. H. Saunders & Son, 23, Eaton Road, Coventry. 3630

ARCHITECTURAL ASSISTANT of Intermediate R.I.B.A. standard, capable of carrying out surveys, preparing sketch schemes, working drawings and details. The appointment is pensionable, five-day week. Dining room facilities. Application, stating age, experience, qualifications and salary, to District Architect, F. W. Woolworth & Co. Ltd., 26/40, Kensington High Street, London, W.8. 3601

MORRIS DE METZ, F.R.I.B.A., requires experienced ASSISTANTS for large scale projects. West End Office. Salary up to £960. Telephone CITy 4056 or HUNter 1051. 3153

BURLES & NEWTON require ARCHITECTURAL ASSISTANT between Intermediate and Final standard. The appointment offers experience and opportunity. Reply 25, Bedford Row, W.C.1. 3602

QUALIFIED SENIOR ARCHITECTS and INTERMEDIATE ASSISTANTS required, varied and interesting work with responsibility. Please apply giving full particulars of training, experience and salary expected. Box 3604.

ARCHITECTURAL ASSISTANTS of Senior and Intermediate standard are required in the offices of Sir Percy Thomas and Son. The programme of work is varied, hospitals, Universities, Schools and Industrial Works being predominant. Applicants should have experience in contemporary design and construction. Salary and annual bonus is dependent upon experience and ability. Holiday arrangements—three weeks per annum and every third Saturday morning free. Pension Scheme open to senior permanent staff. Applications stating age, experience, etc., should be made in writing to: The Secretary, 10, Cathedral Road, Cardiff. 3584

ARCHITECTURAL ASSISTANT required immediately. Capable and conscientious applicants for busy office, varied work. £500 to £600 p.a. Write to Jackson & Calvert, Architects, 3, Raglan Street, Harrogate. 3608

ASSISTANTS and DRAUGHTSMEN required, West End Practice, varied work, apply in writing giving full particulars to G. A. Crockett, 10, Adelaide Street, London, W.C.2. 3592

ARCHITECTURAL ASSISTANT required immediately for interesting and varied work. £400 to £500 p.a. Write to Jackson & Calvert, Architects, 3, Raglan Street, Harrogate. 3591

HELLBERG & HARRIS, F./F.R.I.B.A., require ASSISTANT ARCHITECT, qualified or near Final standard, for their Coventry office. Five-day week, pension scheme. Write, giving particulars of training, experience and salary required to: 13, Queen Victoria Road, Coventry. 3579

ADAMS, HOLDEN & PEARSON require two ARCHITECTURAL ASSISTANTS up to Intermediate standard. The work includes Commercial Buildings, Hospitals and Laboratories. Apply giving age, qualifications, experience and salary required to 38, Gordon Square, W.C.1. 3643

ARCHITECTURAL ASSISTANTS wanted with experience. Good salary and working conditions. B.S.P. Industries, Ltd., Maxwell Road, Elstree Way, Boreham Wood, ELStree 3311/7 (Ref. 190). 3639

NEWMAN, LEVINSON & PARTNERS require qualified and Intermediate ARCHITECTURAL ASSISTANTS, with a minimum of three years' office experience in commercial work. Write or telephone 9, Mansfield Street, London, W.1 (LANgham 9251). 3632

KEEN ARCHITECTURAL ASSISTANTS with desire for responsibility wanted immediately. Only good draughtsmen, who are not birds of passage, would be welcome. Site experience available, as well as drawing office. Five-day week, bonus on some jobs, two weeks holiday this summer, L.V.s available. Details to Felix Walter, F.R.I.B.A., 4, Raymond Buildings, Gray's Inn, W.C.1, or phone HOL. 0535. 3704

ARCHITECTURAL ASSISTANTS required to work on development of large power station project. Previous industrial experience useful but not essential. Salary according to age, experience and qualifications. Applicants should write stating relevant details to A. J. Bryett, Sir William Halcrow & Partners, 47, Park Lane, W.1. 3494

EXPERIENCED ASSISTANTS required in City Office to work on schemes from design stage. Good terms offered to competent men. Tel: for appointment MON. 0516. 3544

ASSISTANT ARCHITECT required for varied work, should be qualified or near Final standard. Pension scheme available. Write with details training and salary required. T. H. Johnson & Son, FF.R.I.B.A., 20, Priory Place, Doncaster. 3523

MOBIL OIL COMPANY invites applications for the post of ARCHITECTURAL ASSISTANT in their Birmingham Branch Office. Applicants should be of intermediate standard, have experience in contemporary design, and be capable of working independently. A high standard of presentation is required. Pension and Life Assurance Scheme; general sickness benefits; free luncheon vouchers; social club. Write giving full details of experience, age and salary required to the Employment Adviser, Caxton House, Westminster, S.W.1, quoting Ref.: AAB 9868 A. 3684

PROGRESSIVE and expanding industrial practice of nationally known Management Consultants require ARCHITECTURAL ASSISTANTS of all grades, £650—£1,050 p.a. plus benefits. Excellent opportunities for advancement and travel. Country house working conditions. Write with details to P. E. Group Technical Division, Park House, Wick Road, Egham, Surrey. 3694

ARCHITECTURAL ASSISTANT required for interesting general practice. Intermediate Standard. Must be capable of working with minimum of supervision. Apply, stating age, experience and salary required to Malcolm Peck, Roberts & Associates, A.R.I.B.A., 15 Friary Street, Guildford. 3673

ARCHITECTURAL ASSISTANTS required, £600—£850 according to qualifications and experience. Varied work. Own transport desirable, but not essential. Reply stating age, qualifications, experience and present salary—D. R. Harper Esq., A.F.C., D.F.C., A.R.I.B.A., Messrs. F. W. B. Yorke, Harper & Harvey, 191, Corporation Street, Birmingham, 4. 3693

PLAYNE & LACEY immediately require ARCHITECTURAL ASSISTANTS (Final and Intermediate) in office with varied practice. Write 19 Queen Anne's Gate, Westminster, S.W.1, or telephone WHI 2552 stating salary required. 3691

LLEWELLYN SMITH & WATERS require SENIOR and JUNIOR ASSISTANTS for a widely varied programme of work. Salary according to experience. Please write stating qualifications, experience and age to 103 Old Brompton Road, S.W.7. 3689

ARCHITECTURAL ASSISTANTS of experience are urgently required by a Yorkshire (West Riding) firm of Architects engaged on all types of work. Only assistants capable of accepting responsibility will be considered. Living accommodation can be provided. Apply in writing giving particulars of age and experience. Box 3688.

SENIOR and INTERMEDIATE ARCHITECTURAL ASSISTANTS required by large Company in London—Vacancies also in branch offices. Applicants should have sound knowledge of Construction, Surveying and Building Programme Co-ordination, and be capable of handling projects from sketch plan onwards. Commencing salary by arrangement—Superannuation Scheme—Holiday arrangements honoured. Full particulars of experience, etc., to Box 3687.

ARCHITECTURAL ASSISTANT, post Intermediate standard, required in the Architects' Dept. of London Brewery. Five-day week, staff pension scheme and staff canteen. Reply stating age, experience and salary required to Box 3680.

ARCHITECTURAL ASSISTANT (Intermediate/Final Standard) for varied interesting projects from sketch design to completion. 5-day week. Salary according to experience. Edmund Kirby & Sons, 5 Cook Street, Liverpool 2. 3679

ARCHITECTURAL ASSISTANTS, Intermediate standard or above, required by Goodhart-Rendel, Broadbent & Curtis, 22, Whitehall, S.W.1. Give details of training, experience and salary required. 3678

SCHERRER & HICKS require in their Manchester Office INTERMEDIATE ASSISTANT with some office experience for work on new schools. Salary according to ability. Write giving details of training and experience to 27 King Street, Manchester 2. 3676

EXPERIENCED ARCHITECTURAL ASSISTANTS of Senior and Intermediate Standard required for expanding practice in Dartford. Work on hand includes multi-storey flats, housing and industrial schemes. Please write stating full details and salary required to Box 3675.

SENIOR ARCHITECTURAL ASSISTANT required to work in large Contractor's Head Office. Must be fully conversant with Housing and Flat Development. Apply Architectural Department, Sir Lindsay Parkinson & Co. Ltd., 6 Lambeth Road, St. George's Circus, London, S.E.1. 3674

EXPERIENCED SENIOR MEN required for interesting commercial projects in London. Holiday arrangements will be recognised. Five-day week. Salary according to experience. Phone City 8811. 3694

ASSISTANT of about Intermediate standard required for small, busy practice. Jack E. Dalling, L.R.I.B.A., 53, St. Martin's Lane, W.C.2. COVent Garden 2942. 3687

BRISTOL—ARCHITECTURAL ASSISTANT required, R.I.B.A. Intermediate standard or above, with office experience. Varied practice including schools, housing and commercial work. Salary according to experience and capabilities. Kenneth Nealon & Partner, 28, Orchard Street, Bristol, 1. 3686

ASSISTANT ARCHITECT wanted, Senior and Intermediate standard. Apply in writing, giving details of qualifications, experience and salary required. P. & B. Gregory, A.R.I.B.A., M.R.I.A.I., Chartered Architects, 5, Crescent Gardens, University Road, Belfast. 3685

ARCHITECT'S office in Manchester, engaged on School and Church projects, requires Three Qualified ARCHITECTS. Write, stating age, qualification, experience and salary, to Box 3690.

YOUNG, hectic office requires similar ASSISTANTS for building work and interior/furniture designing. Apply in writing, stating present salary, to Tom Hancock of Lupton Morton & Partners, 1, Church Lane, Wallingford, Berks. 3669

QUALIFIED and INTERMEDIATE ASSISTANTS required for full and interesting programme of works. Pleasant working conditions, salary in accordance with age and experience. Please send fullest particulars to Deacon & Laing, 65, Goldington Road, Bedford. 3580

ASSISTANT required in Essex practice with varied works in hand. Intermediate or Final standard; office experience essential; opportunity to accept responsibility. Apply with full particulars and salary to Box 3688.

QUALIFIED ASSISTANT ARCHITECTS required, minimum three years' office experience, preferably in London. Salary according to ability and experience. Theo. H. Birks, 38, Portland Place, W.1. LAN. 7236. 3697

INTERMEDIATE STANDARD ASSISTANTS required, minimum two years' office experience. Salary according to ability. Theo. H. Birks, 38, Portland Place, W.1. LAN. 7236. 3698

SENIOR ARCHITECTURAL ASSISTANT required in Property Department of Group of Commercial and Development Companies, London, W.1. Works cover all aspects of maintenance and development of Stores, Shops, Offices, Factories, etc. Requirements, sound practical knowledge and experience at all levels in design, planning construction and administration. Salary about £1,200 p.a. subject to ability and qualifications. Reply, stating all details, age, experience, etc., to Box 3664.

EXPERIENCED full-time ARCHITECT, not necessarily qualified, required for design of factory-made building components from new materials by large woodworking company. State salary required. Pension Scheme. Box 3670.

ASSISTANT of Intermediate/Final standard required in Croydon office. Varied and interesting work. Five-day week, holiday this year. Apply by letter to Hugh Macintosh & Partners, 33/35, High Street, Croydon. 3683

ARCHITECTURAL ASSISTANT required, preferably qualified, for small but busy Architect's Office in S.W. London. Commercial and domestic experience and salary please to Box 3682.

DONALD INSALL, Architects, require additional ASSISTANT: chiefly Country Houses, new and old. Donald Insall, 3, Lyall Street, London, S.W.1. 3681

ARCHITECTURAL ASSISTANT required in South Bucks office. Intermediate to Final standard, with practical experience. Box 3674.

ARCHITECTURAL ASSISTANTS required immediately by City Firm of Architects with large General Practice. Salaries by arrangement according to experience and ability. Five-day week. Luncheon Vouchers and Pension Scheme. Write Box MR/145, c/o 95, Bishopsgate, E.C.2. 3676

ARCHITECT'S ASSISTANTS with some experience required by small London Office, ability to take responsibility and site supervision of medium size work. Write experience and salary required to Box 3678.

A MAJOR OIL COMPANY invites applications for the following positions in their Manchester Office:—

ASSISTANT ARCHITECT
ARCHITECTURAL ASSISTANT.

Assistant Architect—Applicants should be A.R.I.B.A., capable of administration, supervision of staff and controlling work. Must hold a current driving licence.

Architectural Assistant—Intermediate standard. Applicants should have experience of contemporary design, and be capable of working independently.

Pension and Life Assurance Scheme; General Sickness benefits; free luncheon vouchers; Social Club. Write, giving full details of experience, age and salary required, to Box 3672.

LONDON Building Surveyors' Architectural Department require JUNIOR for general duties. Age 17-18. Good prospects for advancement. Write Box 3665, or ring MET. 8001 for appointment.

ERIC FIRMIN & PARTNERS require ARCHITECTURAL ASSISTANT for work on industrial and commercial projects. Applicants should have at least three years' office experience. Please write Thavies Inn House, Holborn Circus, London, E.C.1. 3663

ARCHITECTURAL ASSISTANT required for North Devon Office. Intermediate standard. Salary £600 per annum. 3677

LEWIS SOLOMON, KAYE & PARTNERS have vacancies for two Senior or near Senior ASSISTANTS. Applicants must have good knowledge of contemporary design and construction of commercial buildings. Salary according to experience. Apply: Thavies Inn House, 5, Holborn Circus, E.C.1. 3651

QUANTITY SURVEYOR required. Apply, stating qualifications, age, experience and salary required, to Foster-Smith & Wallis, 37, Hallgate, Doncaster. 3649

A DESIGNER with Architectural experience, imagination and progressive ideas required. Apply Trehearne & Norman, Preston & Partners, Architects & Surveyors, 83, Kingsway, W.C.2. HOL. 4071. 3659

SENIOR ARCHITECT'S ASSISTANTS and SENIOR QUANTITY SURVEYORS required. Send full particulars, experience, references and salary required. Sandy & Norris, 134, Newport Road, Stafford. 3660

LONDON ARCHITECTURAL ASSISTANTS of Intermediate and Final standard required to work on a variety of projects. Apply in writing only, stating training, experience and salary required, to J. Brian Cooper, F.R.I.B.A., 30, St. George Street, Hanover Square, London, W.1. 3652

KUMASI COLLEGE OF TECHNOLOGY, Kumasi, GHANA, require temporary ARCHITECTURAL STAFF at their LONDON OFFICE for about nine months to prepare contract drawings for a large building programme in Ghana.

Applications are invited from qualified architects and architectural assistants.

Further details may be obtained from the London Office of Kumasi College of Technology at 29, Tavistock Square, London, W.C.1, to whom applications should be sent as soon as possible. 3653

VINE & VINE, FF./A.R.I.B.A., of Tudor Chambers, Station Road, N.22, have vacancies for ARCHITECTURAL ASSISTANTS (Post Intermediate R.I.B.A. standard) to assist Partners in the working up of projects from sketch designs. Salary £750—£1,000. 3654

CAPABLE ASSISTANT required for varied Practice, Bedfordshire. Scope for responsibility. Salary range from £500 to £700 according to ability. Box 3656.

TWO ARCHITECTURAL ASSISTANTS, Intermediate to Final standard, for Licensed premises, Shops, Interior Design and Fittings, etc. Good draughtsmanship and some experience in specification writing desirable. Also SURVEYOR for repairs and decorations, etc. Salaries to be agreed. Apply: Chief Architect, Friary Brewery, Guildford, Surrey. (Guildford 2965.) 3658

Architectural Appointments Wanted

4 lines or under, 9s. 6d.; each additional line, 2s. 6d. Box Number, including forwarding replies, 2s. extra

BOY, age 17, six years as boarder at well-known Public School, North of England, wishes to leave next July, for work, training and experience with firm of architects, South or West England. Six passes at O. Level last July. Available for interview March 25—April 23. Box 3204

ARCHITECT, A.R.I.B.A. (30), school trained, four years as Senior Assistant in private practice, seeks responsible position with prospects, anywhere; single; own car; some capital available. Box 3620.

ARCHITECT with seven years' experience in South, East and Central Africa, at present Senior Technical Officer in one of the largest organizations for development projects in West Africa, is returning to the United Kingdom in September and requires a position where his special knowledge would be of value. Box 3661.

A. R.I.B.A., six years' experience, would like evening or weekend work. Do anything. Car owner. Hourly or lump sum basis. Box 3675.

Other Appointments Vacant

4 lines or under, 9s. 6d.; each additional line, 2s. 6d. Box Number, including forwarding replies, 2s. extra

ASSISTANT QUANTITY SURVEYORS—£730 to £1,055 p.a. Starting salary according to age and experience. Final R.I.C.S. and experience in taking off and preparing bills of quantities and settling final accounts essential. All appointments superannuable. Apply, stating age and experience and naming three referees, to Secretary, 10, Augustus Road, Birmingham, 15, immediately. 3514

Services Offered

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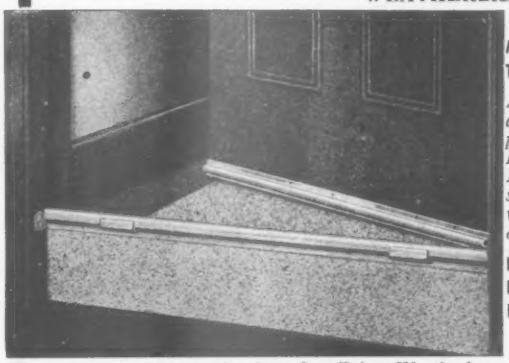


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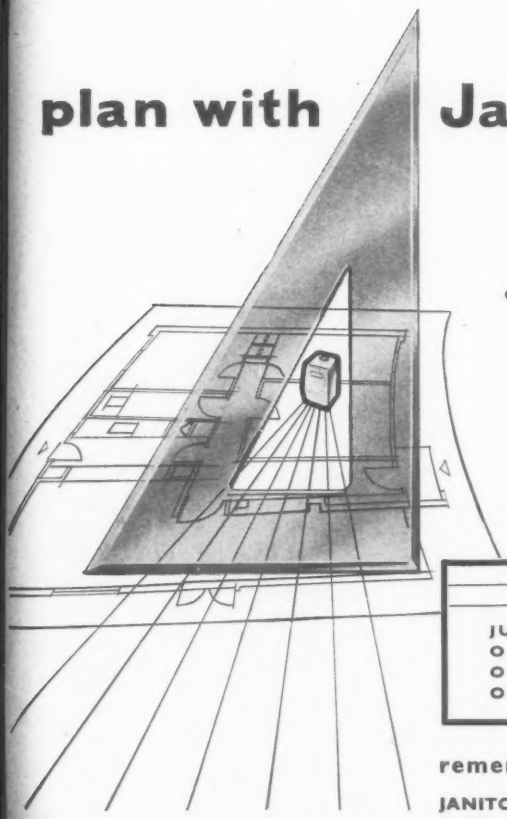
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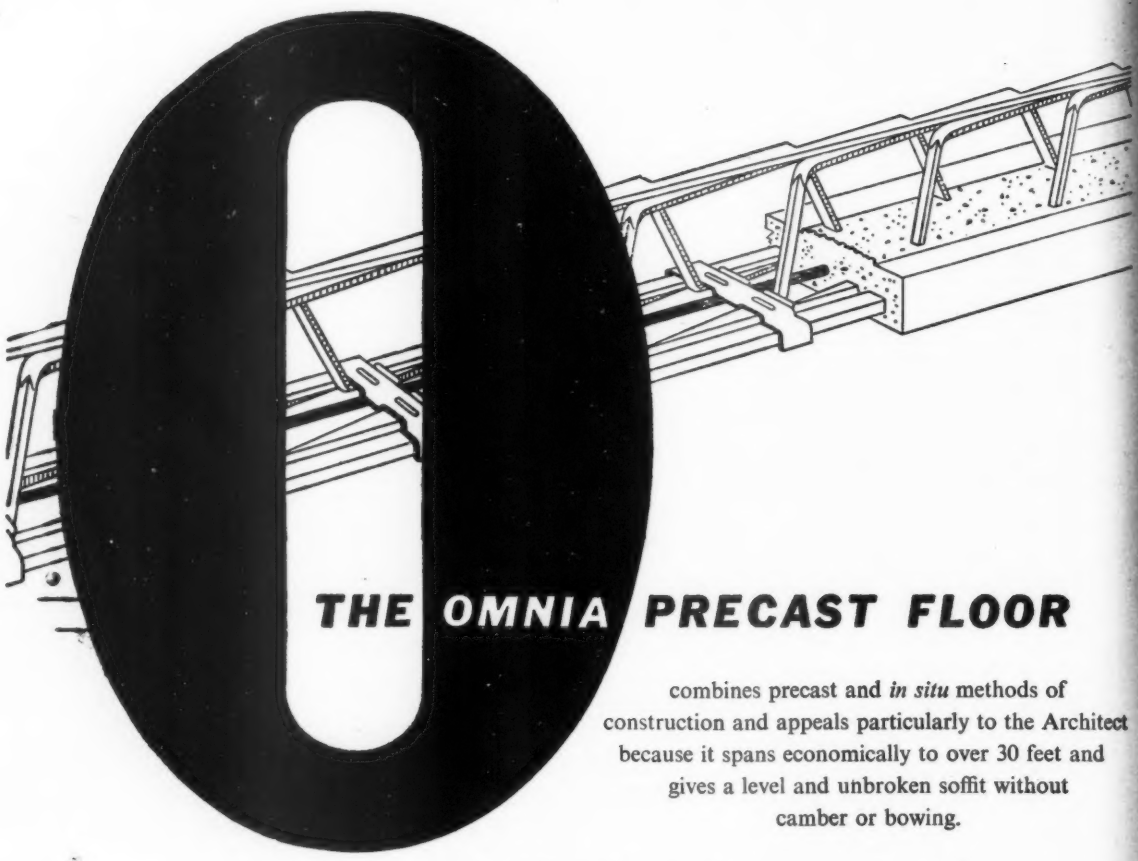
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